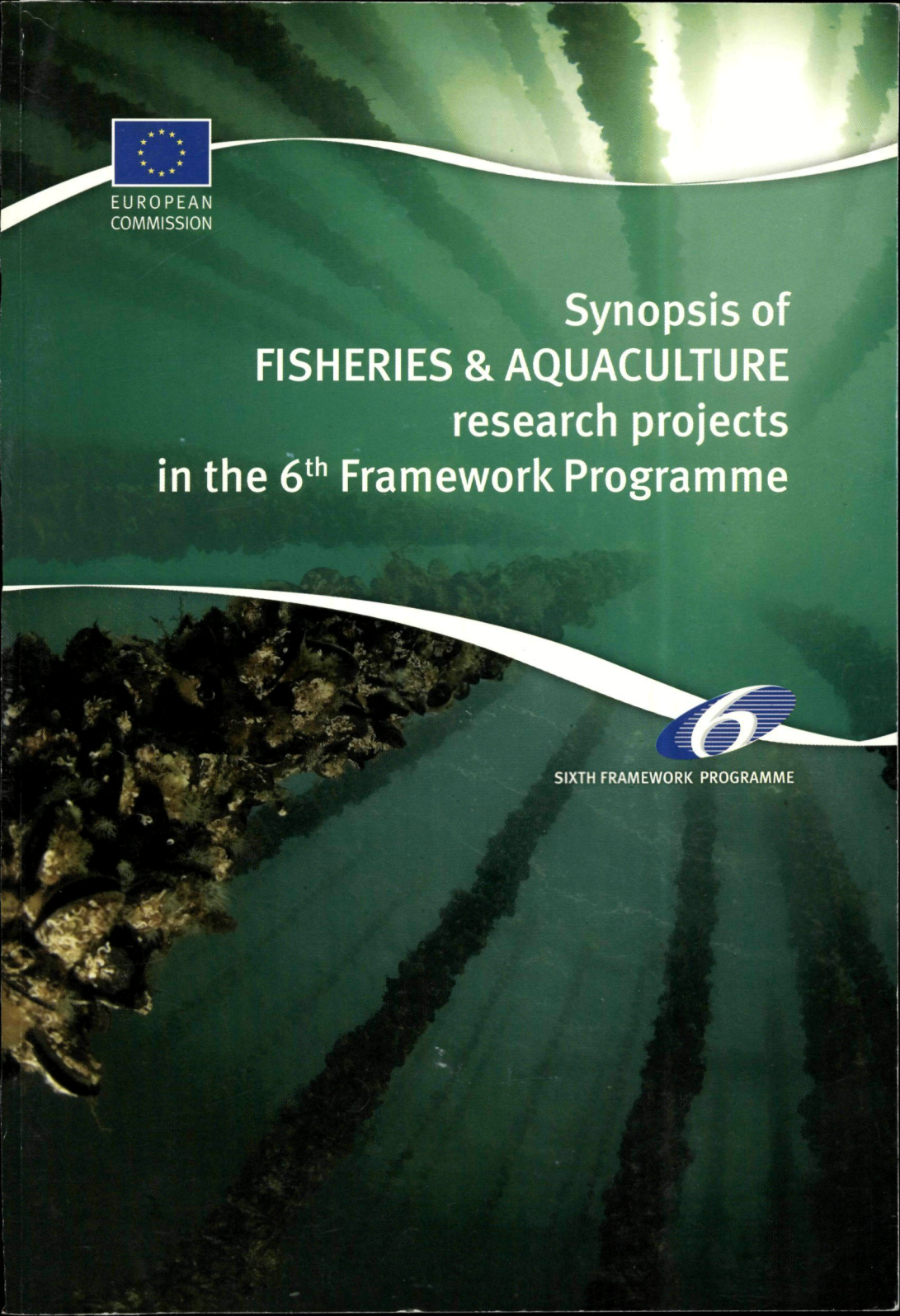
EUROPEAN
COMMISSION
Synopsis of
FISHERIES & AQUACULTURE
research projects
in the 6th Framework Programme
SIXTH FRAMEWORK PROGRAMME

European Commission
Community research

Synopsis of FISHERIES & AQUACULTURE research projects in the 6th Framework Programme

SIXTH FRAMEWORK PROGRAMME

Directorate General
for Maritime Affairs and Fisheries

Directorate General
for Research

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Foreword

The Common Fisheries Policy (CFP) is a dynamic process where several critical issues are tackled simultaneously. Larger sharing of responsibilities with national governments and stakeholders, a shift to longer-term management strategies, a move towards fishing effort management and fleet-based management, implementation of recovery plans for depleted stocks, integration of environmental requirements, development of the economic dimension of the CFP, and the strategic plan for aquaculture are examples of areas which characterize the new orientation of the CFP.

EU fisheries management is facing serious challenges. A large number of stocks are classified as outside safe biological limits and zero catch has been advised for several stocks. Aquaculture has been one of the fastest growing animal production sectors in Europe and European aquaculture research is worldwide recognised as a major player. There is, however, often a gap between the knowledge generated and the ability to translate it into market opportunities.

These new challenges call for higher quality and timely delivery of advice. At the same time the complexity of the research questions is increasing, in particular with the integration of environment requirements.

Promoting sustainable fisheries and aquaculture through an integrated approach combining the latest advances in science, together with environmental and socio-economical factors is a critical objective of EU research programmes and, in particular, of the 6th Framework Programme of Research.

FP6 Research in support of Fisheries and Aquaculture focused on the following objectives:

- Solving policy problems via pragmatic and much more applied research with shorter timing for individual projects (SSP programme),
- Promoting excellence in science in priority thematic areas of Food quality and Safety (Priority 5) and Sustainable development, global change and ecosystem (Priority 6),
- Developing international cooperation activities (Inco programme) and specific research activities for SMEs,
- Increasing capacity building through mobility of researchers (Marie Curie actions),
- Promoting coordination of national research programmes among Member States (ERANET scheme).

Through its funds to European projects and its links to national research activities, FP6 has strengthened research in fisheries and aquaculture in universities, research centres and industry. It has backed scientific areas of high priorities such as scien-

tific basis of fisheries management, fisheries monitoring, control and surveillance, animal welfare, functional genomics, stress and disease resistance, nutrition and feeding, husbandry etc. Efforts have also been made to promote dissemination of results to users through different channels (scientific publications, specific workshops, books, international conferences, etc).

The scientific community has provided excellent contribution to the research priorities, thus demonstrating the great interest not only by researchers but also by industry, policy-makers and stakeholders for this programme. There is now a comprehensive portfolio of 159 funded and running projects.

The synopsis provides information on all running projects, classified by specific programme, scientific keywords, number of contract, acronym and/or country. Most of them have a website address, which can be easily accessed for further information on the projects.

We hope that readers will find this publication both interesting and useful. The synopsis targets a wide audience including not only researchers, but also industry, public authorities and public at large involved in the fisheries and aquaculture sectors.

Fokion Fotiadis
Director General
Directorate General for Maritime Affairs and Fisheries

Jose Manuel Silva Rodriguez
Director General
Directorate General for Research

Acknowledgements

Acknowledgments are due to Maria Merlo, Tuuli Kytölä, Apostolos Peltekis, Hans Jellasics, and Annemie Van Vaerenbergh for collecting the information and preparing the synopsis and to Jacques Fuchs and Stamatis Varsamos for the technical supervision of the document.

Nota Bene

Every care has been taken in the preparation of this synopsis and the information is provided in good faith. This synopsis is a compilation of abstracts of the projects. Some abstracts were corrected to create a more uniform presentation. Nevertheless, the contents cannot be guaranteed to be accurate or complete, and remains under the responsibility of the coordinators of these projects. Neither the European Commission nor any person acting on behalf of the Commission can be held responsible for the contents or for the use which might be made of them. In all cases where up-to-date information is sought regarding a particular project, contact should be made with its coordinator.

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Introduction

The development and successful implementation of the Common Fisheries Policy (CFP) is highly dependent on research and objective advice provided by scientific institutions. In the 2002 reform of the CFP and more recently in the Blue Book [1] adopted in 2007, the Commission has emphasised the crucial role of research and scientific advice for improving decision-making in EU fisheries management and related issues.

The new orientation of the CFP includes also a strategy for the sustainable development of European aquaculture (under revision during 2008) which although it is a self-sustainable industry that demonstrates a high potential for innovation and technology development, needs clearly scientific support to aquaculture-related policy challenges within the CFP, such as health, environmental issues, product quality and safety, methods for regulatory framework. All these requirements define an important area of Research for the European Union's Policy.

Structure of the 6th Framework Programme (FP6)

FP6 was made up of three main blocks of activities grouped in two specific programmes (plus a third Specific programme on nuclear research).

Research in the first and third specific programme has been concentrated on a number of selected priority areas. Projects have been selected in a competitive way based on Calls for Proposals (in some cases calls for tenders) and peer review, i.e. evaluation with the help of external, independent experts. To implement the various activities, different instruments, project types and funding schemes have been applied.

Fisheries & Aquaculture research in FP6 (2002-2006)

Strategy and priorities for fisheries & aquaculture research have been determined by DG MARE (FISH) and DG RTD through a process involving Commission interservice consultations, consultation of the Member States (Programme Committee) and strong interaction with the scientific community and relevant stakeholders. Research in support to fisheries & aquaculture has been specifically addressed in the following specific programmes of FP6:

— ***SSP – 'Scientific Support to Policy'.*** The SSP programme was built to support the formulation and implementation of the Common Fisheries Policy and thus it was specifically focused on research in support to fisheries & aquaculture. The

[1] An Integrated Maritime Policy for the European Union – COM(2007) 575 final.

Table 1: Schematic overview of the structure of FP6

FP6 (EC part): Three Main Blocks of Activities									
Block 1: Focusing and Integrating European Research									
7 Priority Thematic Areas							Specific activities Covering a Wider Field of Research		
Life sciences, genomics and biotechnology for health	Information society technologies	Nanotechnologies and nanosciences, knowledge-based functional materials, new production processes and devices	Aeronautics and Space	Food quality and safety	Sustainable development, global change and ecosystems	Citizens and governance in a knowledge-based society	Research for policy support	New and emerging science and technologies (NEST)	
							Specific research activities for SMEs		
							Specific international co-operation activities		
Block 2: Structuring the ERA							**Block 3: Strengthening the foundations of ERA**		
Research and Innovation		Human resources & mobility		Research infrastructures		Science and society	Co-ordination of research activities		Development of research/ innovation policies

aim was to provide scientific contributions on specific needs ('demand-driven') in order to promote: (i) responsible and sustainable fisheries and aquaculture activities that contribute to healthy marine ecosystems, (ii) an economically viable and competitive fisheries and aquaculture industry and (iii) a fair standard of living for those who depend on fishing and aquaculture activities. Research projects funded under SSP in the field of fisheries & aquaculture focused on the following sub-areas:

- Scientific basis of fisheries management,
- Scientific basis of fisheries monitoring, control and surveillance,
- Integration of environmental requirements into the CFP,
- Sustainable aquaculture production
- Synthesis and dissemination of results to end-users.

— ***Priority 5 – 'Food quality and safety'*** to support a better seafood and other marine resources production, improving the knowledge about diseases, health conditions, processing, etc.

— ***Priority 6 – 'Global Change and Ecosystem — Sustainable development, global change and ecosystem'*** to support research on marine and coastal environments.

— ***'SME programme',*** promoting technological innovations in small and medium enterprises.

— ***International Cooperation 'INCO programme',*** to support specific research with Third countries (Mediterranean Partner Countries, Developing Countries in Africa, Asia and Latin America, etc.).

— ***'Marie Curie Actions'*** *(*mobility) promoting training and fellowship schemes from individual short term training to large training networks.

— ***Coordination of National research programmes 'ERANET scheme'*** to facilitate the launching of joint research initiatives (joint calls) between Members States.

— ***European Technological Platform*** **(ETP)** facilitating the involvement of the industry in research.

The research needs determined by the Commission have been addressed in successive calls in the different specific programmes of the FP6 listed above and stimulated the submission of a large number of high quality proposals that have been evaluated by independent experts panels.

In total, 159 fisheries and/or aquaculture-related projects have been funded for a total budget of 292.9 million €. Among them 47 projects (61.6 million €) were fish-

eries specific, whereas 75 (98 million €) were aquaculture specific from which 29 projects (32.1 million €) were funded from the SMEs programme. The rest of the projects had at least a fisheries and/or aquaculture component. Priority 6, SSP, Priority 5 and SME actions have offered the largest part of the budget allocated for fisheries and aquaculture research (Figure 1).

The most important FP6 modules for fisheries & aquaculture research have been the SSP and the SME programmes. The majority of the Priority 6 projects listed here usually had only a component related to fisheries, while their general scope was mainly 'Environment' oriented. Similarly, some big projects included in the Priority 5 list displayed in this publication had only a component related, in most of the cases, to aquaculture research.

In fisheries research, the budget has been mainly allocated to fisheries management, ecosystem approach and mitigation of fishing impacts (Figure 2), whereas the EU support to aquaculture research has targeted issues related to aquacultured species diseases, development of new production methods, systems and rearing technologies, quality and safety of food & feeds, genetics & breeding and welfare (Figure 2).

As mentioned above a considerable budget has been allocated to 'Environment-related' projects that had a more or less important fisheries and/or aquaculture com-

Figure 1. *Funding of Fisheries & Aquaculture related Research projects per FP6 thematic priority or specific programme*

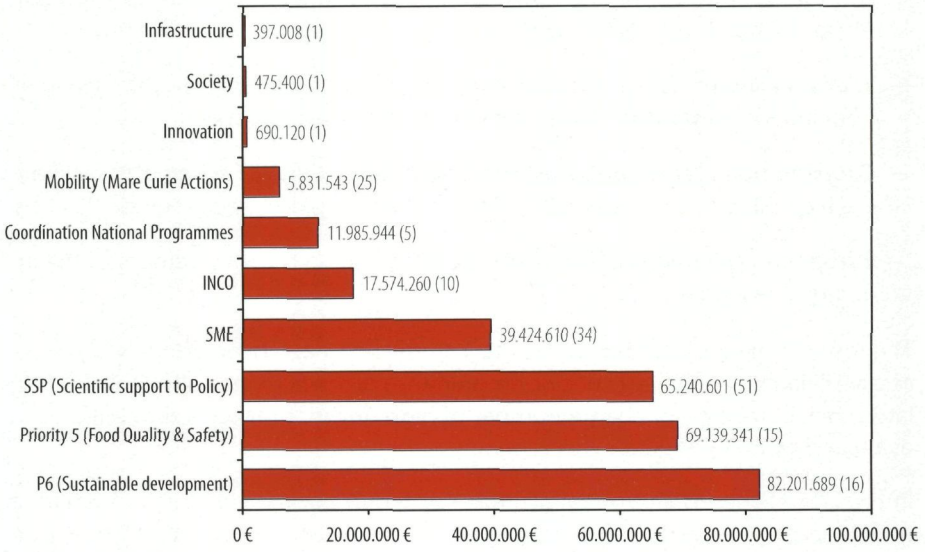
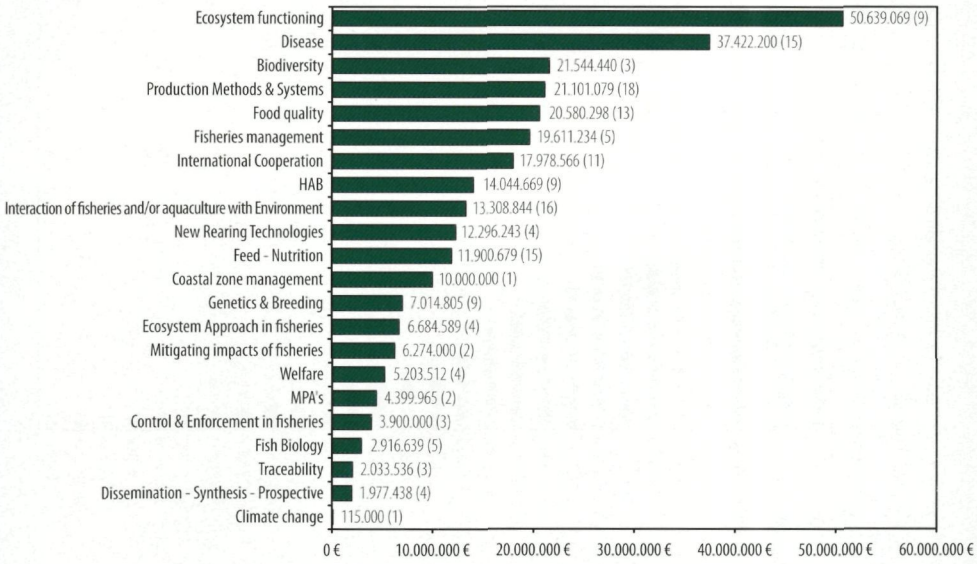


Figure 2. *Funding of Fisheries & Aquaculture related Research projects per Scientific field (FP6)*



ponent. These projects have mainly focused on research on the ecosystem functioning, on biodiversity, harmful algal blooms (HAB) and interactions of fisheries and aquaculture with the environment (Figure 2).

More than 1800 participations (academic, private companies, NGO's, etc), from 55 countries (mainly from EU27), have been involved in FP6 funded projects related to fisheries and aquaculture research. The most implicated have been UK, Spain, France, Norway, the Netherlands, and Italy with 293, 176, 175, 152, 64 and 57 participants respectively.

Considering the number of projects, UK (115 projects), Spain (87), France (85), Norway (75), Netherlands (64) and Italy (57) have been the most involved countries (Figure 3), whereas the most active in terms of assuming the responsibility of the coordination of these projects were UK (33 projects), Netherlands (18), Norway (18), Germany (17), France (16) and Spain (15) (Figure 4). Subsequent budget allocation per country is displayed in Figure 5.

Figure 3. *Number of projects per country involved in FP6*

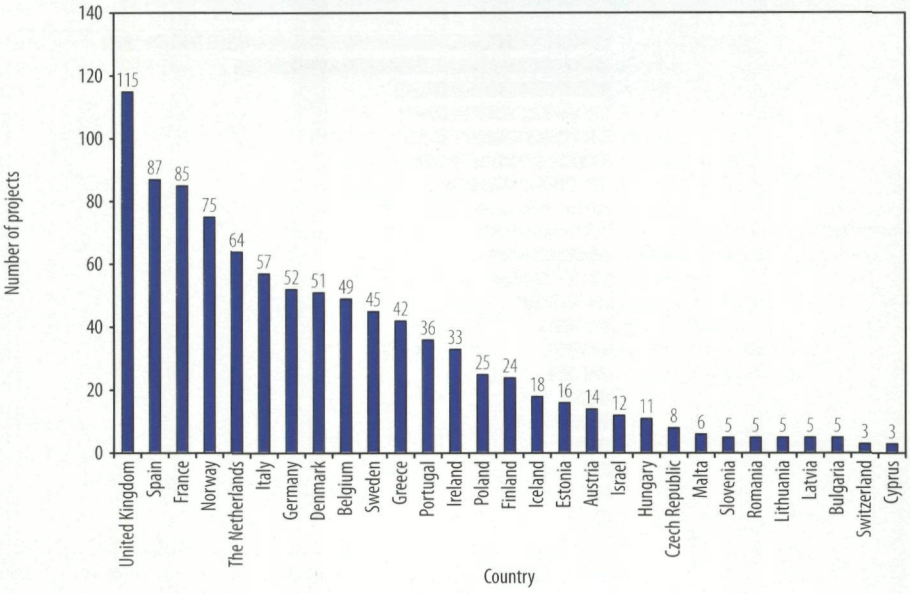


Figure 4. *Number of projects coordinated per country involved in FP6*

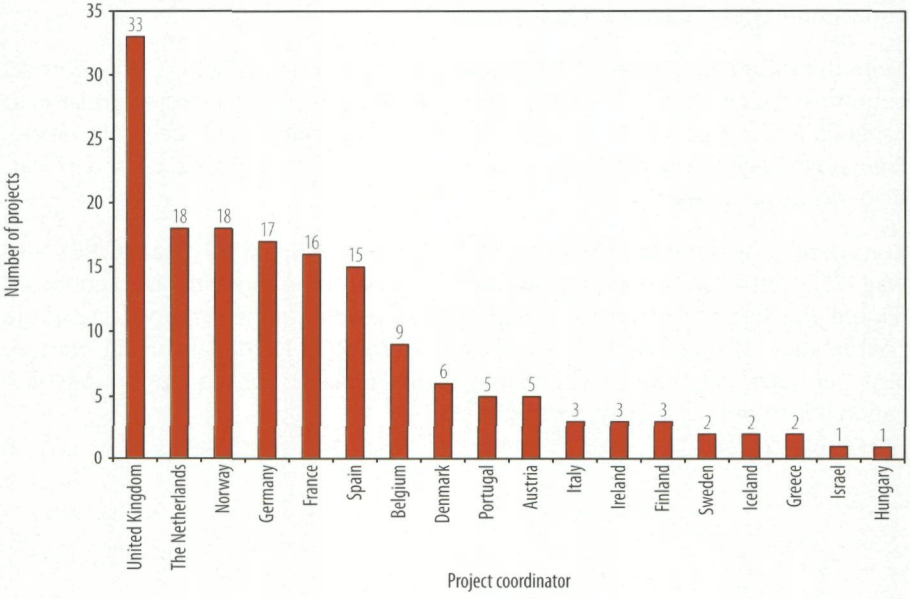
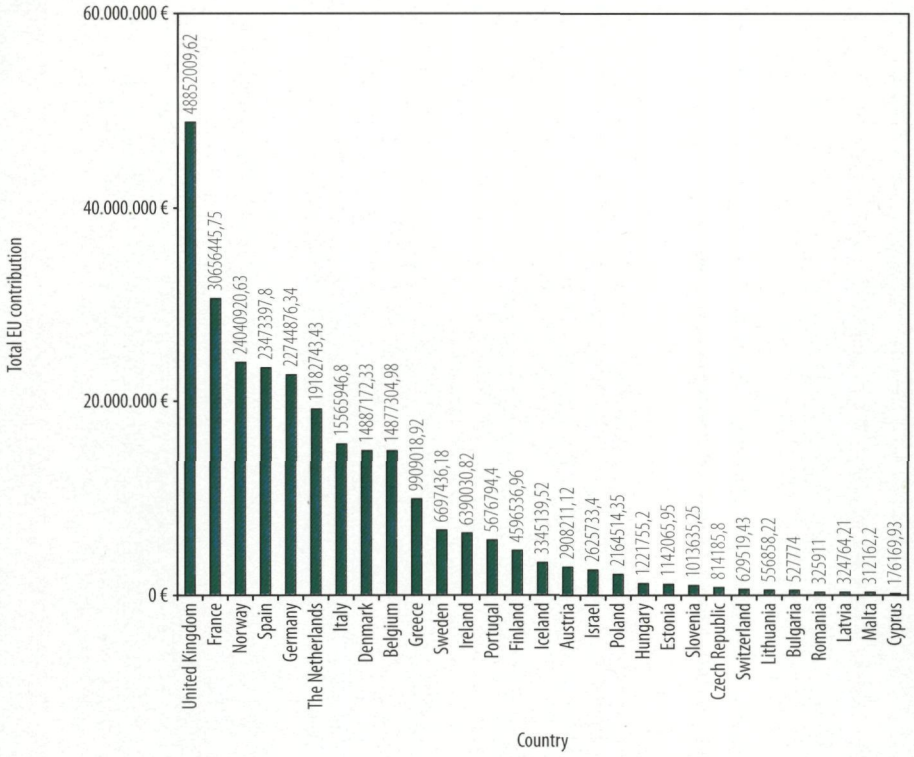


Figure 5. *EU contribution received by the countries involved in fisheries & aquaculture research within FP6*



The way forward

The European Commission will update and pursue its strategy in support to fisheries and aquaculture research within the 7th Framework Programme for Research (FP7: 2007-2013). Information on opportunities to find support for research activities in FP7 can be found at the following link: *http://cordis.europa.eu/en/home.html*

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Block 1: Focusing and Integrating European Research

Priority thematic areas:

Priority 5: Food quality and safety

Priority 6: Sustainable development, global change and ecosystems

Specific activities covering a wider field of research:

Research for policy support

Specific international cooperation activities

Specific research activities for SMEs

A fishing boat leaving the port of Ijmuiden (NL)

Priority thematic areas

Priority 5: Food quality and safety

- FOOD-1
- FOOD-2
- FOOD-3
- FOOD-4
- FOOD-5
- FOOD-6
- FOOD-7
- FOOD-9

Hake – Fish market in Portugal
© European Commission / Glenn Quelch

FOOD-1: Total Food Chain

List of projects

- SEAFOODPLUS

SEAFOODPLUS: Health promoting, safe seafood of high eating quality in a consumer driven fork-to-farm concept

Call number:	FP6-2002-FOOD-1	*Total Project Cost:*	23.073.067,00
Contract number:	506359	*EC Contribution:*	14.213.551,00
Contract type:	Integrated Project	*Actionline:*	Total food chain: Quality seafood for improved consumer health and well-being
Starting Date:	01/01/2004		
Duration (months):	60		
Project website:	www.seafoodplus.org	*Keyword:*	Seafood / Food Quality / Fisheries / Aquaculture
DG responsible:	DG RTD		

Coordinator Prof Børresen Torger
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The benefits to human health of eating a reasonable quantity of seafood regularly are well known and have led to an increase in fish farming to meet market demand. The EU wants to maintain the quality and safety of farmed and caught seafood, tailor products to give consumers what they want, and encourage them to eat a greater variety of fish. Consequently, it has set up SEAFOODplus, a large-scale integrated project to study the production, marketing and consumption of seafood, and its effects on health. Research institutes and organisations from all over Europe are working on the programme, which could last up to five years, and is initially being divided up into three 18-month reporting periods.

The programme is structured around the following six main themes:

1. SEAFOOD AND NUTRITION: Doctors recommend fish as part of a healthy diet because the polyunsaturated fatty acids it contains can reduce the risk of heart disease and cancer. The project will also investigate the possible role fish consumption could have in helping to prevent other chronic diseases such as inflammatory bowel disease, irregular heartbeat, along with its role in younger people's health, and in combating obesity, post-natal depression and brittle bones.

2. CONSUMER HEALTH: Although many consumers already know that seafood is good for them, the amount they eat varies widely. The project will study attitudes and preferences in detail, and the results will be used to develop new seafood products which offer health benefits and are able to meet consumer expectations. This should encourage more people to eat more fish and improve their health.

3. SAFETY AND RISK/BENEFIT ANALYSIS: Shellfish can sometimes cause food poisoning or histamine reactions. SEAFOODplus will develop standard universal methods to detect certain viruses in susceptible shellfish, and develop early-warning systems for viral contamination. These risks will be balanced against health benefits and the results will be publicised.

4. NEW SEAFOOD CONSUMER PRODUCTS: Sources of wild fish are limited and some stocks are under threat, while fishing and fish farming produce by-products that are not being used to their full potential. The aim is to extract compounds beneficial to health from such sources and develop them into new functional food products. The approach taken will also enhance the consumer appeal of fish products while identifying new types of convenience and functional foods.

5. AQUACULTURE: Intensively reared fish can create problems of pollution and product quality. The public is concerned that farmed fish should be well treated and that wild species are not adversely affected. SEAFOODplus will study what goes into producing highquality fish products, including genetics and what the fish are fed. It will establish a framework for farming European fish to a standard that is acceptable on quality, ethical, and environmental grounds.

6. TRACEABILITY: Consumers want reassurance about where their food comes from, that the environment has not been damaged in its production, and that it is safe to eat. Across all the research projects, a systematic approach will be to ensure that every fish on the European market can always be traced back to its source. A standard vocabulary of terms will be devised and integrated into a traceability system which will be tested on several seafood chains and validated for wider use.

7. A BALANCED APPROACH:The strategy of the SEAFOODplus programme is to promote the production of better, safer fish of all kinds, and to increase their consumption across Europe. In the long term, it is expected that through increased consumption and awareness a quantifiable improvement in human health can be recorded.

Partners

• DANISH INSTITUTE FOR FISHERIES RESEARCH	Denmark
• NIVERSITY OF GOTEBORG	Sweden
• NIVERSITEIT WAGENINGEN	The Netherlands
• AGENINGEN IMARES	The Netherlands
• NSTITUTO DE INVESTIGACAO AGRARIA E DAS PESCAS — IPIMAR	Portugal
• ETHERLANDS ORGANISATION FOR APPLIED SCIENTIFIC RESEARCH (TNO)	The Netherlands
• MOREFORSKING	Norway
• AQUANET	Canada
• COOPERATIVE DE TRAITEMENT DES PRODUITS DE LA PECHE	France
• SALICA INDUSTRIA ALIMENTARIA S.A.	Spain
• ASSOCIATION EUROPEENNE DES PRODUCTEURS DE MOLLUSQUES	Belgium
• MARINOVA APS	Denmark
• JOHNSON SEAFARMS LTD	United Kingdom
• FISH FARM YERSEKE B.V.	The Netherlands
• BIOMAR A/S	Denmark
• DONNA OPPDRETTSMIJLJO AS	Norway
• ROYAL GREENLAND SEAFOOD A/S	Denmark
• INTERNATIONAL ORGANISATION FOR THE DEVELOPMENT OF FISHERIES IN EASTERN AND CENTRAL EUROPE	Denmark
• FJORD SEAFOOD ASA	Norway
• ALBACORA S.A	Spain
• TRACETRACKER INNOVATION AS	Norway
• GEASA/GESTION EMPRESARIAL ALAVESA S.A.	Spain
• EWOS INNOVATION	Norway

• FISH FARM	Poland
• UNIVERSITE DE BRETAGNE SUD	France
• STICHTING TOPINSTITUUT VOEDSELWETENSCHAPPEN	The Netherlands
• ID-LELYSTAD, INSITUUT VOOR DIERHOUDERIJ EN DIERGEZONDHEID BV	The Netherlands
• PLANT RESEARCH INTERNATIONAL	The Netherlands
• SINTEF FISHERIES AND AQUACULTURE	Norway
• ECOLE NATIONALE D'INGENIEURS DES TECHNIQUES AGRICOLES ET ALIMENTAIRES	France
• THE CENTRE FOR ENVIRONMENT; FISHERIES AND AQUACULTURE SCIENCE	United Kingdom
• INSTITUTE OF ICHTYOBIOLOGY AND AQUACULTURE OF THE POLISH ACADEMY OF SCIENCES	Poland
• DOUBLE DELTA KERESKEDELMI TERMELO ES KUTATASFEJLESZTESI BETETI TARSASAG LTD	Hungary
• AARHUS SCHOOL OF BUSINESS	Denmark
• ICELANDIC FISHERIES LABORATORIES	Iceland
• INSTITUTE OF FOOD RESEARCH	United Kingdom
• INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	France
• CENTRO NAZIONALE TRAPIANTI	Italy
• ACADEMIC MEDICAL CENTER	The Netherlands
• MARINE INSTITUTE	Ireland
• MUSEUM NATIONAL D'HISTOIRE NATURELLE	France
• MATFORSK AS	Norway
• FISKERIFORSKNING	Norway
• LANDSPITALI UNIVERSITY HOSPITAL	Iceland
• BUNDESFORSCHUNGSANSTALT FUR FISCHEREI	Germany
• NATIONAL INSTITUTE FOR PUBLIC HEALTH AND THE ENVIRONMENT	The Netherlands
• DANISH EPIDEMIOLOGY SCIENCE CENTRE AT STATENS SERUM INSTITUT	Denmark
• AGRICULTURAL AND FOOD DEVELOPMENT AUTHORITY	Ireland
• UNIVERSITE BRETAGNE OCCIDENTALE	France
• GLASGOW CALEDONIAN UNIVERSITY	United Kingdom
• UNILEVER U.K. CENTRAL RESOURCES LIMITED	United Kingdom
• IESE — BUSINESS SCHOOL — UNIVERSITY OF NAVARRA	Spain
• UNIVERSITE DE LA ROCHELLE	France
• UNIVERSIDAD DE SANTIAGO DE COMPOSTALA	Spain
• NORWEGIAN COLLEGE OF FISHERIES SCIENCE, UNIVERSITY OF TROMSO	Norway
• NORGES TEKNISK — NATURVITENSKAPELIGE UNIVERSITET	Norway
• DANISH VETERINARY AND FOOD ADMINISTRATION	Denmark
• AZTI FUNDAZIOA	Spain
• CHALMERS TEKNISKA HOEGSKOLA AB	Sweden
• GENT UNIVERSITYY	Belgium
• INSTITUT NATIONAL DE LA RECHERCHE AGRONOMIQUE	France
• THE UNIVERSITY COURT OF THE UNIVERSITY OF ST ANDREWS	United Kingdom
• HELSINGIN YLIOPISTO	Finland
• NATIONAL UNIVERSITY OF IRELAND, CORK — UNIVERSITY COLLEGE CORK	Ireland
• UNIVERSIDAD DE BARCELONA	Spain
• CENTRO DE BIOLOGIA MOLECULAR SEVERO OCHOA, CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS	Spain
• FRIEDRICH-SCHILLER-UNIVERSITAT JENA	Germany
• CARDIOVASCULAR RESEARCH INSTITUTE MAASTRICHT	The Netherlands
• UNIVERSIDADE DE CORUNA	Spain

FOOD-2: Epidemiology of food-related diseases and allergies

List of projects

- ERMES

ERMES: European Research for Mediterranean seafood

Call number:	FP6-2002-FOOD-2B	*Total Project Cost:*	599.320,00
Contract number:	016107	*EC Contribution:*	599.320,00
Contract type:	Specific Support Action	*Actionline:*	Epidemiology of food-related diseases and allergies
Starting Date:	01/01/2006		
Duration (months):	24	*Keyword:*	Seafood / Food Quality / Fisheries / Aquaculture
Project website:	www.ermesproject.org		
DG responsible:	DG RTD		

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Fish is a fabulous food — lots of variety in taste and texture, versatile and low in saturated fat. Oily fish (mackerel, herring, sardines) contain Omega-3 fatty acids, a type of polyunsaturated fat which can help to reduce total blood cholesterol. Omega-3 protects the heart and circulation and may reduce the risk of heart disease and certain cancers. So it's no surprise that diets with a high fish content have gained an international reputation and are fast becoming popular around the world. However, the news is not all good. The fishing industry of the Mediterranean is characterised by its high propensity of small to medium enterprises. With mounting competition and regulation they are facing increasing challenges to stay on the market. For this reason the aim of ERMES is to support access to research and development activities and to new technologies for SMEs of the seafood industry (from capture to aquaculture to processing and distribution) in the Mediterranean area.

ERMES is a vital project that assists the seafood based SME's of the Mediterranean countries to adjust to increasing pressure from global competition by helping them tap into the latest research. As opposed to northern Europe where the fishing industry is characterised by a high level of industrialisation, the backbone of the fishing industry in the Mediterranean is made up of small traditional companies.

ERMES is employing the expertise of top research institutions from Spain, France, Italy and Greece. These institutions have combined their experience with that of Chambers of Commerce from Turkey, Tunisia, France and Italy. The business support organisations are assisting in the compilation of profile data on the various companies that are most likely to benefit from the project. Scientific advice can now flow from the research community to industry and help improve the quality of seafood capture, farming and processing in the region.

The project expects to generate greater cooperation within the seafood sector in the region and provide it with the relevant information on available research opportunities. The consortium has contacted over 700 small companies and in some cases companies have been able to benefit by technical innovation through the networks created by ERMES, thus mak-

ing the transfer of knowledge easier. In these cases the project is able to provide specific support through a partner that specialises in the transfer of technology within the seafood production chain. Overall, the objective is to assist approximately 70 to 80 relevant organisations that have potential either in research or technological innovation and may be supported through more advanced scientific services. ERMES stands out by giving a boost to the small producers and processors in the regional seafood industry as well as promoting a long-term dialogue between companies all along the seafood production chain. In this way the project ensures the quality and safety of seafood from the Mediterranean, both within the EU and beyond. Therefore the ERMES consortium is not only protecting the consumer, but also this traditional industry and the communities that depend upon it.

Partners

• TESEO – TECHNICAL SUPPORT FOR EUROPEAN ORGANISATIONS	Belgium
• CHAMBRE DE COMMERCE ET D´INDUSTRIE MARSEILLE-PROVENCE	France
• CHAMBRE DE COMMERCE ET D´INDUSTRIE DE TUNIS	Tunisie
• THE ISTANBUL CHAMBER OF COMMERCE	Turkey
• FUNDACION AZTI	Spain
• UNIVERSITY OF FIRENZE	Italy
• ETAT — FOOD INDUSTRIAL RESEARCH AND TECHNOLOGICAL DEVELOPMENT COMPANY	Greece
• INSTITUT TECHNIQUE DE DÉVELOPPEMENT DES PRODUITS DE LA MER — ID.MER	France
• INDUSTRIA ARTIGIANATO E CAMERA DI COMMERCIO AGRICOLTURA DI PALERMO	Italy

FOOD-3: Impact of food on health

List of projects

- EPIZONE
- EUROLATSEA

EPIZONE: Network on epizootic disease diagnosis & control

Call number:	FP6-2002-FOOD-3A	*DG responsible:*	DG RTD
Contract number:	016236	*Total Project Cost:*	14.000.000,00
Contract type:	Network of Excellence	*EC Contribution:*	14.000.000,00
Starting Date:	01/06/2006	*Actionline:*	Impact of food on health
Duration (months):	60	*Keyword:*	Aquaculture / Disease
Project website:	www.epizone-eu.net		

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Epizootic outbreaks cause panic among citizens and have lasting negative effects on the economy of the food industry. Diseases such as foot-and-mouth, avian influenza and classical swine fever spread very fast in high densities of susceptible animals and can only be fought with complete food chain approaches. EPIZONE is an ambitious project aimed at improving research on preparedness, prevention, detection and control of epizootic diseases by collaboration, in order to reduce the economic and social impact of eventual future outbreaks.

EPIZONE uses currently available skills and knowledge to develop and improve new tools, to control rapidly (re-)emerging epizootic diseases. A worldwide network of institutes contributes to available expertise through collaboration in the fields of diagnostics, intervention strategies, surveillance and epidemiology, and risk assessment. The main difficulty for current disease prevention and control is that research is fragmented between a range of research entities. This fragmentation phenomenon is due to a lack of collaboration between institutions and to the lack of appropriate funding. EPIZONE aims to diminish the unnecessary duplication of resources and capacities, and encourage both the rapid expansion of skills and the spreading of excellence between partners, to open up new opportunities for international research. To this end, the project uses electronic communication systems to improve the transfer of information, for example. The project is also developing and implementing Strategic Integration Activities for the establishment of international priorities in scientific activities, strategic review and planning in themed areas. EPIZONE's approach follows the 'fork-to-farm' model, which takes into consideration all the food production and processing stages.

The EPIZONE Consortium Agreement defines the development of a management structure based on a 'virtual institute', with clear rules, processes and procedures, including mechanisms for review and assessment, and an appropriate administrative support. Such a system defines the basis of future control and diagnostic methods, and can contribute to reducing the economic and social impacts of epizootic outbreaks. The combination of a full chain approach and the available expertise will provide a better understanding of epizootic agents

and their interaction with hosts — such as cattle, pigs, poultry and farmed fishes. It is this understanding and the establishment of diagnostic databases and improved genome sequences that can enhance public perception of European agriculture and aquaculture. Consumers are, indeed, very sensitive to epizootic outbreaks and to the control measures they entail. A better perception of outbreak dangers and answers leads to production of high-quality products and, thus, increased competitiveness of the European food sector. EPIZONE actively contributes to the improved perception of European food sectors, by developing modern, effective and more acceptable control and diagnosis of epizootic diseases. The reduced research fragmentation targeted by the project also has a significant role to play in minimising the impact of possible future outbreaks.

Partners

• CENTRAL INSTITUTE FOR ANIMAL DISEASE CONTROL	The Netherlands
• INSTITUUT VOOR DIERHOUDERIJ EN DIERGEZONDHEID, PART OF ANIMAL SCIENCES GROUP	The Netherlands
• FEDERAL RESEARCH INSTITUTE FOR ANIMAL HEALTH	Germany
• INSTITUTE FOR ANIMAL HEALTH PIRBRIGHT LABORATORY	United kingdom
• VETERINARY LABORATORIES AGENCY	United kingdom
• AGENCE FRANÇAISE DE SÉCURITÉ SANITAIRE DES ALIMENTS	France
• DANISH INSTITUTE FOR FOOD AND VETERINARY RESEARCH	Denmark
• STATENS VETERINARMEDICINSKA ANSTALT	Sweden
• CENTRE DE COOPÉRATION INTERNATIONALE EN RECHERCHE AGRONOMIQUE POUR LE DÉVELOPPEMENT	France
• CENTRE OF ANIMAL HEALTH, NATIONAL INSTITUTE FOR AGRICULTURE AND FOOD RESEARCH AND TECHNOLOGY	Spain
• ISTITUTO ZOOPROFILATTICO SPERIMENTALE DELLE VENEZIE	Italy
• LANZHOU VETERINARY RESEARCH INSTITUTE CAAS	China
• NATIONAL VETERINARY RESEARCH INSTITUTE	poland
• FMD INSTITUTE ANKARA	Turkey
• CENTRUM VOOR ONDERZOEK IN DIERGENEESKUNDE EN AGROCHEMIE	Belgium
• HANNOVER INSTITUT FÜR VIROLOGIE	Germany
• ISTITUTO ZOOPROFILATICO SPERIMENTALE DELLA LOMBARDIA E DELL'EMILIA ROMAGNA	Italy
• HARBIN VETERINARY RESEARCH INSTITUTE CAAS	China
• FAO, FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS	Italy
• DIGITAL VALUE INTERNET PROFESSIONALS	The Netherlands

EUROLATSEA: European Research for the Latin American seafood industry

Call number:	FP6-2002-FOOD-3C	*DG responsible:*	DG RTD
Contract number:	031766	*Total Project Cost:*	600.000,00
Contract type:	Specific Support Action	*EC Contribution:*	600.000,00
Starting Date:	01/01/2007	*Actionline:*	Impact of food on health
Duration (months):	24	*Keyword:*	Seafood / Food Quality / Fisheries / Aquaculture
Project website:	www.teseo.be		

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Latin America is becoming a real force in aquaculture, supplying international markets with products like shrimp, tilapia, salmon, mussels, abalone and oysters. Three countries in the region, Chile, Brazil and Mexico, are now among the top ten in terms of greatest increase in culture production, although Asia still remains the largest aquaculture producer in the world. As a major exporter of seafood products, Latin America plays a key role in the seafood value chain. The export trend to the EU continues to increase steadily in most cases. However, if Latin American countries wish to maintain or increase their exports of seafood products to the EU, they must comply with a number of European standards, rules and procedures. Strict policies on food quality, traceability and safety throughout the production, transformation and distribution chains need to be upheld.

Technological developments and innovative changes in fishing must ensure that certain practices can be sustained. Besides concerns related to food quality and safety, the environment is under great stress. Particular fishing techniques, processing and transformation chains and transport modes may have a serious impact on the environment. Certain practices might even have undesirable effects on unrelated sectors such as tourism, hygiene and health, or compromise the safety of products we buy in our supermarkets every day. So far, the Latin American aquaculture, capture, processing and distribution industries have had limited exposure to scientific research institutions and experienced poor uptake of technological innovation. The EUROLATSEA project has tremendous potential for helping improve the quality of seafood processing in the Latin American region, by ensuring better communication between producers and research institutions and improved exposure to technological innovation.

EUROLATSEA supports access to research and development (R & D) activities and new technologies for organisations within the Latin American seafood industry. This includes those involved in capture, aquaculture, processing and distribution. It provides scientific and technological advice to companies, including small and medium-sized enterprises (SMEs), and research centres on the basis of careful analysis of their innovation needs in the traceability

of seafood, in the improvement of quality of exports, and the safeguarding of consumer health. The project directly involves five research organisations from Chile, Denmark, Ecuador, Italy and Spain. It combines the expertise of scientific institutions with that of business support organisations (industry associations and companies from Europe and Latin America), in charge of contacting, informing and profiling organisations likely to be assisted by the project in different countries. Three of the nine project partners form part of the ERMES consortium (European Research for Mediterranean Seafood), another Food Quality & Safety initiative. Scientific advice — provided through a series of workshops, one-to-one sessions and follow-ups — helps organisations in need of research to find the most appropriate research institution working on the issue in question and/or to set up cooperation with a particular initiative under Framework Programmes 6 and 7. Organisations requiring technology transfer are assisted by EUROLATSEA specialists to upgrade their technological capacity. The expected results of this Specific Support Action are to provide organisations from the Latin American region working with European companies and exporting to Europe, with a wide set of scientific services. Meeting their innovation and technological needs through vigorous European-Latin American cooperation in research will contribute to high quality, safe, economically viable and sustainable seafood production.

Partners

• TESEO — TECHNICAL SUPPORT FOR EUROPEAN ORGANISATIONS	Belgium
• GAIA — ASOCIACIÓN DE INDUSTRIAS PAÍS VASCO	Spain
• HIDROCULTIVOS	Chile
• CENAIM — CENTRO NACIONAL D'ACUICULTURA E INVESTIGACIONES MARINAS	Ecuador
• FUNDACIÓN AZTI	Spain
• CENTRO TECNOLÓGICO VALPARAÍSO	Chile
• DIFRES-DANISH INSTITUTE FOR FISHERIES RESEARCH	Denmark
• UNIVERSITÀ DEGLI STUDI DI FIRENZE	Italy
• CAMERA NACIONAL DE ACUACULTURA DE ECUADOR	Ecuador

FOOD-4: 'Traceability' processes along the production chain

List of projects

- SUSTAINAQ

SUSTAINAQ: Sustainable aquaculture production through the use of recirculation systems

Call number:	FP6-2002-FOOD-4C	*Total Project Cost:*	531.809,00
Contract number:	43150	*EC Contribution:*	531.809,00
Contract type:	Specific Support Action	*Actionline:*	Traceability' processes along the production chain
Starting Date:	01/02/04		
Duration (months):	24	*Keyword:*	Aquaculture / New Rearing Technologies
Project website:	www.sustainaq.net		
DG responsible:	DG RTD		

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Increased awareness of the benefits of including seafood as part of one's diet has led to a boom in the consumption of fish. Unfortunately, this has meant a reduction in global fish population stocks. Aquaculture is, therefore, being relied on more and more to provide a steady supply of fish and to assist in curbing the threat of over-fishing. The SUSTAINAQ project aims to ensure that aquaculture products are environmentally sound, sustainable and, above all, safe for human consumption. Farmed seafood production has risen worldwide to more than 40 million tons, from around 3 million tons in 1970, compared to the total estimated wild catch of about 90 million tons. Aquaculture products supply more than 8 billion meal portions per year.

Aquaculture is able to provide the nutritionally aware market with a previously expensive healthy food. It is of increasing importance, therefore, to ensure that growing demand does not lead to a reduction in safety and quality of the food provided. Recirculation Aquaculture Systems (RAS) may provide production platforms to do just that. The fish farming industry is now in better shape than ever before, feeding more people, creating more jobs and with a better environmental record. But, as fish farming increases in importance as a provider of food, more care needs to be taken to secure the production of safe, high quality products. Modern technology may control potential damage to the environment, securing the health of the stock, reducing waste and limiting potential escapees of farmed fish to wild fish stock. Sometimes, however, rising costs can have a limiting effect. Recirculation systems have proved successful in providing an economically sound process, whereby farms can organise production and also control escapees and potentially damaging effluent. At the same time, the viability of the aquaculture and the environment can be secured.

Because RAS has low water requirements and produces a low volume of effluent water, it is probably the type of land-based aquaculture production that interferes least with the environment. Water can be drawn from a variety of sources, such as open waters or boreholes. The effluent can be treated before discharge or can be used for agricultural purposes while

its effect on the environment can be completely controlled and even eliminated. Eastern European countries are facing challenges related to water use conflicts, wastes and maintaining breeder stocks of endangered fish species. Therefore, these countries may be the biggest beneficiaries of improved farming practice through the introduction of RAS. The overall objective of this project is to identify factors that are restricting the sustainable production of seafood in Europe. This is to be achieved by establishing a consortium of aquaculture research partners and aquaculture SMEs across Europe.

Partners

• NORWEGIAN INSTITUTE OF FISHERIES AND AQUACULTURE RESEARCH	Norway
• INSTITUTE FOR MARINE RESOURCES AND ECOSYSTEM STUDIES	The Netherlands
• FRENCH RESEARCH INSTITUTE FOR EXPLOITATION OF THE SEA	France
• UNIVERSITY OF SPLIT, CENTRE FOR SEA STUDIES	Croatia
• RESEARCH INSTITUTE FOR FISHERIES, AQUACULTURE AND IRRIGATION	Hungary
• DUNAREA DE JOS UNIVERSITY OF GALATI	Romania
• UNIVERSITY OF SOUTH BOHEMIA CESKE BUDEJOVICE, RESEARCH INSTITUTE OF FISH CULTURE AND HYDROBIOLOGY	Czech Republic
• WAGENINGEN UNIVERSITY	The Netherlands
• POLISH ACADEMY OF SCIENCES, INSTITUTE OF ICHTYOBIOLOGY AND AQUACULTURE	Poland
• TRABZON CENTRAL FISHERIES RESEARCH INSTITUTE	Turkey
• VILLMARKSFISK	Norway
• MARING D.O.O.	Croatia
• KAVIAR HOUSE	Romania
• IDA GIDA TARIMSAL URETIM VEDIS PALAZARLAMA	Turkey
• SHUBUNKIN FISH PRODUCTION LIMITED LIABILITY COMPANY	Hungary
• INNOFLEX FOR TECHNICAL DEVELOPMENT AND CONSTRUCTING IN AQUACULTURE	Hungary
• COMITÉ INTERPROFESSIONNEL DES PRODUITS DE L'AQUACULTURE	France
• CHRIST CHRIST	Poland
• KILIC SU URUNLERI URETIMI IHRACAT-ITHALAT VE TIC.	Turkey

FOOD-5: Methods of analysis, detection and control

List of projects

- AQUAGRIS
- BIOTOX
- BIOTOXMARIN
- DETECTOX

AQUAGRIS: Environmental management reform for sustainable farming, fisheries and aquaculture

Call number:	FP6-2005-FOOD-4B	*Total Project Cost:*	899.671,00
Contract number:	36298	*EC Contribution:*	899.671,00
Contract type:	Coordination action	*Actionline:*	Management of waste from farms and fisheries
Starting Date:	01/01/2007		
Duration (months):	36	*Keyword:*	Aquaculture / Interaction with Environment / Fisheries
Project website:	www.aquagris.org		
DG responsible:	DG RTD		

Coordinator Dr Zonno Vincenzo
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The safety of what is served up to us on our dinner plate is no longer something we can take for granted. In the past the belief was that with a little care, good food would provide safe, healthy and high-quality nutrition. Not much thought was given to how food was grown and processed. Consideration for how plants, animals, soil and water were treated by conventional farming systems was not on our minds. Extensive use of pesticides, fertilizers and significant energy inputs to maximize production brought with them considerable waste release and a variety of related environmental problems. Over the last few decades, consumers' awareness of food production systems that are more environmentally sustainable and compatible with the demands of the earth's ecosystem has increased.

Knowing that we are what we eat has made us more sensitive to our natural environment, both in terms of what we put in and what we take out. To make this system more palatable, 26 organisations from 16 different countries united their efforts, in the context of the AQUAGRIS Coordination Action, in order to reform environmental management for improved sustainability in the farming, fisheries and aquaculture (FFA) industries. Leading specialists from different countries with expertise in environmental management are reviewing the latest international scientific literature, to elucidate the optimum standards in sustainable farming and highlight future research priorities. The AQUAGRIS network aims to increase understanding and awareness of the problem areas facing today's FFA industries, and develop solutions that have minimal impact on biodiversity and the environment. Frequent seminars and workshops, an ongoing discussion between leading experts in the field resulting in subsequent cross-fertilisation of ideas are on the menu. These get-togethers encourage the formation of a coherent strategy for future research, avoiding duplication of effort and fragmentation of resources. In addition, all stakeholders are able to meet and exchange ideas at the custom-made website. In order to be able to incorporate existing or new technological advances into current management systems, standards, policies and regulation on environmental management in FFA, industries must obviously be harmonised. The first step to producing compatible, sustainable, unified systems involves the mapping of the current situa-

tion, concerning the status of national and international standards, codes of practice, policies and regulation. In this way, the main barriers that prevent the development, implementation and use of measures to decrease the impact of the FFA industries can be identified. This effort will yield new standards and codes of practice, removing bottlenecks and loopholes and promoting best practice.

AQUAGRIS is developing new strategies for environmental management in order to produce sustainable systems. Such systems are designed to imitate natural systems to maximize existing soil nutrient and water cycles, energy flows and soil organisms. The ultimate goal is to coordinate processes so that waste from one process or system becomes input for another. This information can be used to form guidelines on how to achieve environmental best management practice in a cost-effective way. The AQUAGRIS network consists of 13 universities, 7 research institutes and 6 SMEs. The diversity in the nature of these institutes ensures exchange of knowledge, experiences and ideas. The effort will sustain its future expansion with the identification of suitable Centres of Activity, throughout the European Research Area, which may become associate and observer members in the research forum. AQUAGRIS is without doubt a big step forward in environmental management for improved sustainability in the FFA industries. Through interaction, discussion and knowledge it will provide the necessary expertise for informed decision-making for environmentally beneficial and sustainable practices.

Partners

• DIPARTIMENTO DI SCIENZE E TECHNOLOGIE, BIOLOGICHE ED AMBIENTALI, UNIVERSITA DEL SALENTO	Italy
• STM AQUATRADE S.R.L	Italy
• INSTITUTE OF BIOLOGY UNIVERSITY OF SOUTHERN DENMARK	Denmark
• AQUABIO TECH LIMITED	Malta
• NATIONAL INSTITUTE OF OCEANOGRAPHY	India
• NORWEGIAN UNIVERSITY OF LIFE SCIENCES	Norway
• AGES VSTERREICHISCHE AGENTUR FUR GESUNDHEIT UND ERNÄHRUNGSSICHERHEIT IVET MOEDLING	Austria
• CENTIV GMBH	Germany
• PANCHAM AQUACULTURE FARMS LIMITED	India
• SUGANTHI DEVADASON MARINE RESEARCH INSTITUTE	India
• TRANSNATIONAL CONSULTING PARTNERSHIP EWIV	Germany
• COCHIN UNIVERSITY OF SCIENCE AND TECHNOLOGY	India
• INSTITUTO PER LO STUDIO DEGLI ECOSYSTEMI, SEZIONE DI FIRENZE	Italy
• INSTITUTE FOR VEGETABLE AND ORNAMENTAL CROPS	Germany
• SCOTTISH ASSOCIATION FOR MARINE SCIENCE	United Kingdom
• STIFTELSEN JTI — INSTUTET FOR JORDBRUKS — OCH MILJOTEKNIK	Sweden
• TAMPEREEN TEKNILLINEN YLIOPISTO	Finland
• BEN-GURION UNIVERSITY	Israel
• UNIVERSITE DE CAEN BASSE NORMANDIE	France
• INSTITUTE OF PLASMA PHYSICS, DEPARTMENT OF PHYSICS, UNIVERSITY OF CRETE	Greece
• HAIFA UNIVERSITY	Israel
• MURCIA UNIVERSITY	Spain
• AZTI FUNDAZIOA	Spain
• GENT UNIVERSITY	Belgium
• UNIVERSIDAD DE BARCELONA	Spain
• UNIVERSIDAD DE LAS PALMAS DE GRAN CANARIA	Spain

BIOTOX: Development of cost-effective tools for risk management and traceability systems for marine biotoxins in seafood

Call number:	FP6-2003-Food-2-A	*EC Contribution:*	3.008.477,00
Contract number:	514074	*Actionline:*	Development of cost-effective tools for risk management and traceability systems for zoonotic agents and marine biotoxins in seafood
Contract type:	Specific Targeted Research Project		
Starting Date:	01/01/2005		
Duration (months):	36		
Project website:	http://www.biotox.org/		
DG responsible:	DG RTD	*Keyword:*	Seafood / HAB / Fisheries / Aquaculture
Total Project Cost:	5.317.496,00		

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The production of shellfish is an important economic activity in the European Union with considerable net value for the economy. The presence of marine toxins in oysters, mussels and other shellfish can affect human health and cause serious financial losses to the aquaculture industry. Shellfish can take in toxins from polluted water or if an algal bloom develops in certain weather conditions. Accurate and fast testing methods for the presence of biotoxins in shellfish are therefore important for Europe's economy and the health of its citizens. Some test methods do exist but some classes of toxin are hard to estimate using these available methods. Moreover, many methods use tests on mice or rats and it is EU policy to phase out animal testing. A more systematic approach to develop fast and reliable methods is being sought in a new three-year Specific Targeted Research Project, BIOTOX. It includes the main marine laboratories in Europe, and will be overseen by a panel of experts.

The class of lipophilic (lipid soluble) toxins is to assay accurately using current techniques – some methods work for some of them, but many remain hard to quantify, or even to detect. BIOTOX aims to develop and validate new methods to confirm the presence of lipophilic toxins in shellfish, using separation methods based on liquid chromatography and mass spectrometry (LC-MS), and preferably, alternative, rapid assays. Some of these methods can already be used to detect certain shellfish toxins. Methodologies need to be made more reliable, more widely applicable and faster, so that large batches of samples can be tested quickly. Standardised methods to extract test material from suspect shellfish will be developed, together with confirmatory analyses that can cover a range of possible toxins, including those that have not yet been completely characterised. They will form the basis of a universal test procedure for use by the industry and by the control laboratories. Tests developed will require validation and comparison against the current procedures that use mouse samples. A range of certified reference materials will be produced.

BIOTOX is also looking at the problem of knowing when algal blooms become a hazard. Early warning tools for detecting the presence of toxins will use advanced methods based on gene expression. A functional approach will determine suitable genes that will bind to microarrays of commercial chips, leading to a high-capacity, high-speed identification system. A traceability system for affected shellfish that may be on their way to market will be developed. Another line of enquiry is to clean up contaminated shellfish so that they are fit to eat. The chosen example is the DSP lipophilic toxin that can infect farmed mussels. The aim is to purify such shellfish in a few days, taking into account the effects of temperature and the food they are given. The detection and depuration methods that BIOTOX develops will be incorporated into HACCP (Hazard Analysis and Critical Control Point System) for standardised monitoring of biotoxins in shellfish. The European Community Reference laboratory and several national equivalents will ensure that the methods percolate through to all relevant labs. Publicity will also ensure that consumers have confidence in the safety of shellfish. Taken together, these results will help to ensure that European food is of consistently high quality and that the producers of shellfish can deliver a safe product and make a reasonable profit.

Partners

• THE NETHERLANDS INSTITUTE FOR FISHERIES RESEARCH	The Netherlands
• RIKILT INSTITUTE FOR FOOD SAFETY	The Netherlands
• NATIONAL UNIVERSITY OF IRELAND	Ireland
• MARINE INSTITUTE	Ireland
• INSTITUT FRANÇAIS DE RECHERCHE	
• POUR L'EXPLOITATION DE LA MER	France
• SCIENTIFIC INSTITUTE OF PUBLIC	
• HEALTH	Belgium
• OYSTER CREEK SEAFOODS LIMITED	Ireland
• THE NORWEGIAN SCHOOL OF VETERINARY SCIENCE	Norway
• NATIONAL VETERINARY INSTITUTE	Norway
• FOOD SAFETY AUTHORITY OF	
• IRELAND	Ireland
• UNIVERSITY OF MODENA	Italy
• BIOSENSE LABORATORIES AS	Norway

BIOTOXMARIN: Development of novel analytic tools for the detection of marine biotoxins

Call number:	FP6-2003-Food-2-A	*EC Contribution:*	1.325.500,00
Contract number:	513967	*Actionline:*	Development of cost-effective tools for risk management and traceability systems for zoonotic agents and marine biotoxins in seafood
Contract type:	Specific Targeted Research Project		
Starting Date:	01/01/2005		
Duration (months):	36		
Project website:	http://www.biotoxmarin.de		
DG responsible:	DG RTD	*Keyword:*	Seafood / HAB / Fisheries / Aquaculture
Total Project Cost:	2.023.500,00		

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The contamination of seafood with algal toxins can cause severe neuronal and gastrointestinal disorders but also allergies to humans. Sporadic outbreaks of poisoning by ingestion of shellfish that has accumulated marine biotoxins have become a worldwide problem. The economic consequences caused by the production of marine biotoxins during algal blooms in the coastal regions are enormous. In this project, fast, simple and cost-effective detection methods for marine biotoxins in seafood as well as patient sera will be developed, based on the application of high-affinity capture antibodies and novel artificial receptor mimics against the toxins. The applicants already succeeded in raising antibodies against okadaic acid, a diarrhetic shellfish poisoning (DSP) toxin. This promising strategy will now be extended to other groups of relevant toxins causing paralytic shellfish poisoning (PSP), neurotoxic shellfish poisoning (NSP) or amnesic shellfish poisoning (ASP). The new tools for the detection (and quantification) of marine biotoxins to be developed in this project are based on the application of the new Polymer Instruction technology and the highly sensitive Integrated Optical Grating Coupler (IOGC) biosensor technology, and the use of high-affinity antibodies for sensitive ELISA und Western blotting techniques based on an infrared-fluorescence imaging system. User-friendly chip (POCT Chip, dip-stick/card test) assay methods as well as new bioassays based on interaction of okadaic acid with phosphoprotein phosphatase 2A (colorimetric microtitre-plate based PP2A inhibition assay) or the activation/phosphorylation of MAP kinase p38 will be developed. The developed technologies will be compared with existing techniques for evidence of improved efficiency and accuracy. Prototype kits will be manufactured by the companies.

Partners

• INSTITUT FUR PHYSIOLOGISCHE CHEMIE, ABTEILUNG ANGEWANDTE MOLEKULARBIOLOGIE, JOHANNES GUTENBERG UNIVERSITAT	Germany
• BIOTECMARIN GMBH	Germany
• INSTRACTION GMBH	Germany
• DIAGNOSTIC SCIENCE AND TECHNOLOGY GMBH	Germany
• INTEGRIN ADVANCED BIOSYSTEMS	United Kingdom
• MICRO VACUUM LTD.	Hungary
• UNIVERSITE BRETAGNE OCCIDENTALE	France
• DEPARTMENT OF PEDIATRICS, UNIVERSITY 'FEDERICO II' NAPLES	Italy

DETECTOX: Development of an SPR-based biosensor for the detection of lipophilic phycotoxins in shellfish residues

Call number:	FP6-2003-Food-2-A	*EC Contribution:*	802.847,00
Contract number:	514055	*Actionline:*	Development of cost-effective tools for risk management and traceability systems for zoonotic agents and marine biotoxins in seafood
Contract type:	Specific Targeted Research Project		
Starting Date:	01/01/2005		
Duration (months):	36		
Project website:	www.detectox.eu		
DG responsible:	DG RTD	*Keyword:*	Seafood / HAB / Fisheries / Aquaculture
Total Project Cost:	1.149.743,00		

Coordinator Dr Pullinger Mark Alexander
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Lipophilic phycotoxins are often found in high levels in bivalve molluscs, echinoderms, tunicates ormarine gastropods and the consumption of this contaminated seafood can pose a significant threat to human health. There is a need to monitor levels of these toxins in seafood meant for human consumption and to keep levels below defined thresholds. In Europe the broad spectrum mouse or rat bioassay is the only official method for the detection of these toxins, although recently directives were approved stating that any functional method could be used to replace the bioassay if fully validated. The overall objective of this project is to develop a multi-channel, high-throughput biosensor for the detection of diarrheic shellfish toxins, yessotoxins, pectenotoxins, azaspiracids and gymnodimine. The proposed biosensor will exploit the phenomenon of Surface Plasmon Resonance (SPR) to detect and measure these lipophilic phycotoxins in seafood residues. The sensor will be designed as an inhibition assay capable of rapid, reliable multi-toxin detection. The technology allows real-time, automated, multiresidue analysis of food products, both in laboratories and at on-site locations and is capable of measuring coloured, turbid or opaque sample solutions. The assembled consortium has a great deal of experience in their respective fields and demonstrates a high level of complementarities. The project has the required expertise and resources required to carry out the development of this valuable new technology, which has the potential not only to eliminate the need for the ethically concerning bioassays currently used, but also to provide a simple, cheap and improved method for the detection of phycotoxins in shellfish residues.

Partners

• CHALEX RESEARCH LTD	United Kingdom
• EGE UNIVERSITY	Turkey
• EUROPEAN COMMUNITY REFERENCE LABORATORY ON MARINE BIOTOXINS	Spain
• XENOSENSE LIMITED	United Kingdom
• NATIONAL REFERENCE LABORATORY ON MARINE BIOTOXINS	Greece
• ANFACO	Spain
• UNIVERSIDAD DE SANTIAGO DE COMPOSTALA	Spain
• QUEEN'S UNIVERSITY OF BELFAST'	Ireland
• CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE	France

FOOD-6: Safer and environmentally friendly production and healthier foodstuffs

List of projects

- CONSENSUS
- EADGENE
- FEEDING FATS SAFETY
- IMAQUANIM

CONSENSUS: Multi-Stakeholder Platform for Sustainable Aquaculture in Europe

Call number:	FP6-2003-Food-2-A	*DG responsible:*	DG RTD
Contract number:	513998	*Total Project Cost:*	1.449.027,00
Contract type:	Coordination action	*EC Contribution:*	1.449.027,00
Starting Date:	01/03/2005	*Actionline:*	Sustainable aquaculture ensuring high-quality and safe products
Duration (months):	36		
Project website:	http://www.euraquaculture.info/	*Keyword:*	Aquaculture / Production Methods & Systems

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As part of its programme for sustainable development, the European Union believes that European aquaculture can supply a variety of nutritious and healthy food products, as well as economic benefits for society, with a minimal adverse environmental impact. However, the industry faces complex challenges, including a somewhat negative image in some European countries, as well as safety and quality questions regarding imports from third countries. With 20 partners from nine countries, the Coordination Action CONSENSUS aims to create a European platform that will help achieve EU plans for an environmentally sound aquaculture industry that can create long-term secure employment, particularly in fishing-dependent areas. It will also help promote aquaculture to consumers.

High in polyunsaturated fatty acids, trace elements and vitamins, seafood has grown in popularity as an alternative to meat and fast-food diets. Subsequently, demand has substantially outpaced the ability of the wild fisheries to supply it. Although annual European aquaculture production nearly doubled between 1991 and 2000, imports grew apace. Currently, most European aquaculture concerns freshwater fish (mainly trout) and marine molluscs (mussels, oysters and clams), and is often carried out by SMEs situated in rural areas and employing fewer than ten people. Marine fish farming – salmon, sea bass and bream – and other species under development, such as cod, could help the industry to balance the demand. However, aquaculture suffers from consumer perceptions that farmed fish is not as safe or as high quality as fish caught 'in the wild'. Recent media reports of shellfish poisoning from phycotoxins and dioxin contamination in farmed salmon have affected aquaculture's market standing. CONSENSUS will collect existing knowledge about aquaculture, assembling stakeholders from throughout Europe, including producer associations, non-governmental organisations, consumers and scientists. Experts will analyse each industry segment, evaluating impact, sustainability, and consumer perceptions. The three-year project will identify needs for research, biotechnologies, and other innovative technologies, considering legislation affecting aquaculture, and economic constraints. It will examine aquaculture's

environmental effects – for example, its use of coastal resources, the impact of drugs and chemicals used in aquaculture, and biodiversity and animal welfare.

The Coordination Action will produce sustainability protocols, followed by periods of industry and public consultation, stimulating communication among the scientific community, producers and society. The final protocols will set out practices and sustainability objectives for production systems, with low environmental impact and high competitiveness and ethical responsibility. A key goal is to transfer to SMEs better knowledge and technologies for developing and implementing effective aquaculture production systems. CONSENSUS will produce an Internet portal, bringing together new and existing information, as well as an interactive tour showing how sustainability protocols can be implemented throughout the production process and supply chain. It will produce new codes of conduct for fin-fish and mollusc production, and recommendations for creating a basis for sustainability certification for aquaculture products. The project will also work to improve consumer communication by providing balanced information on the risks and benefits of eating farmed fish and shellfish.

Partners

• EUROPEAN AQUACULTURE SOCIETY	Belgium
• UNIVERSITEIT WAGENINGEN	The Netherlands
• FEDERATION OF EUROPEAN AQUACULTURE PRODUCERS	Belgium
• *ASSOCIATION EUROPEENNE DES PRODUCTEURS DE MOLLUSQUES*	France
• AQUACULTURE TECHNOLOGY AND TRAINING NETWORK	Ireland
• ASSOCIATION OF SCOTTISH SHELLFISH GROWERS	United Kingdom
• RESEARCH INSTITUTE FOR FISHERIES AQUACULTURE AND IRRIGATION	Hungary
• EUROPEAN BUREAU FOR CONSERVATION AND DEVELOPMENT	Belgium
• EUROPEAN FEED MANUFACTURERS' FEDERATION	Belgium
• BVD CONSULTANTS SA	Belgium
• TEST ACHATS/TEST AANKOOP	Belgium
• BUREAU EUROPEEN DES UNIONS DE CONSOMMATEURS	Belgium
• THE NATIONAL COMMITTEE FOR RESEARCH ETHICS IN SCIENCE AND TECHNOLOGY	Norway
• MARINE INSTITUTE	Ireland
• FISKERIFORSKNING	Norway
• GLASGOW CALEDONIAN UNIVERSITY	United Kingdom
• THE UNIVERSITY OF STIRLING	United Kingdom
• DANISH INSTITUTE FOR FISHERIES RESEARCH	Denmark
• GHENT UNIVERSITY	Belgium
• INSTITUT NATIONAL DE LA RECHERCHE AGRONOMIQUE	France
• TECHNICAL UNIVERSITY OF CATALONIA	Spain

EADGENE: European Animal Disease Genomics Network of Excellence for Animal Health and Food Safety

Call number:	FP6-2002-FOOD-1	*DG responsible:*	DG RTD
Contract number:	506416	*Total Project Cost:*	11.520.765,00
Contract type:	Network of Excellence	*EC Contribution:*	11.519.980,00
Starting Date:	01/09/2004	*Actionline:*	Genomics of host-pathogen interactions in animals
Duration (months):	60		
Project website:	http://www.eadgene.info	*Keyword:*	Aquaculture / Disease

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Improving the health of farmed animals is a pressing issue for Europe. At the moment, European husbandry leads the world in efficiency and animal welfare, but livestock everywhere is prone to disease. Traditional therapies, such as antibiotics and anti-worm treatments, are becoming less effective as pathogens continue to develop resistance to them and there is increased pressure to cut down the use of drugs in order to reduce the risk of them entering the food chain. So, new control methods must be found to keep animals healthy and prevent diseases, many of which also infect humans, affecting food. Genomics offers new opportunities for controlling disease – for example, by breeding genetic resistance into animals, developing new vaccines, and for rapid diagnosis. A Network of Excellence concentrating on the genomics of animalpathogen interactions is bringing together European research on livestock diseases, and will help ensure that Europe retains its status as a world leader in animal health for years to come.

The genome holds a lot of promise for animal health. Identifying animal genes used in defence against disease makes it possible to screen for resistance, so animals with natural immunity can be identified and bred quickly. Knowing which genes in infectious agents are responsible for their ill effects enables the development of live vaccines in which the disease-causing genes can be disabled or removed while preserving the potency of the vaccine. Studying the behaviour of genes during disease leads to a better understanding of the interaction between a pathogen and the animal's immunity, which may in turn assist in drug development. In diseases that are currently untreatable, such as paratuberculosis in cattle, these methods offer new hope. As a relatively new technology, the use of genomics in agriculture and aquaculture is still in its infancy.

Genomics is a high-cost science. Equipment is expensive and specialist knowledge and facilities are needed to deal with the information and resources being generated. The European Animal Disease Genomics Network comprises 13 research centres, each committed to a progressive pooling of resources and facilities and integrating of research strategies. The network is multidisciplinary and will relate findings from genomics to more traditional pa-

thology and aspects of animal husbandry, such as housing. This integrated approach is also likely to enhance our understanding of human disease. The institutes will initiate joint research and training programmes on major diseases caused by bacteria, viruses and other parasites in pigs, cattle, chickens and farmed fish.

To ensure the science reaches vets and farmers, research will be targeted on the needs of industry. A 'club of interest', made up of companies working in animal disease control, will advise the network directly, and regular workshops will communicate results back to the industry. By helping animal breeding companies to retain their competitive edge, the network will also help maintain Europe's rural infrastructure. In line with the European Commission's 'farm-to-fork' philosophy, the network will also consult consumers, through public hearings, and incorporate their opinions into research directions. There will be many beneficiaries from this network. Research careers will be enhanced, animal health and breeding companies will make great advances, and animal health will be improved. But ultimately it is the consumer and society at large that will benefit from safer food produced from more sustainable farming systems.

Partners

• INSTITUT NATIONAL DE LA RECHERCHE AGRONOMIQUE	France
• UNIVERSITEIT WAGENINGEN	The Netherlands
• INSTITUTE FOR ANIMAL HEALTH	United Kingdom
• PARCO TECHNOLOGICO PADANO S.R.L.	Italy
• EUROPEAN FORUM OF FARM ANIMAL BREEDERS	The Netherlands
• ID-LELYSTAD, INSTITUUT VOOR DIERHOUDERIJ EN DIERGEZONDHEID BV	The Netherlands
• NORGES VETERINAERHOGSKOLE	Norway
• RESEARCH INSTITUTE FOR BIOLOGY OF FARM ANIMALS	Germany
• DANISH INSTITUTE OF AGRICULTURAL SCIENCES	Denmark
• CORDOBA UNIVERSITY	Spain
• LIEGE UNIVERSITY	Belgium
• BIOTECHNICAL FACULTY OF THE UNIVERSITY OF LJUBLJANA	Slovenia
• ROSLIN INSTITUTE	United Kingdom

FEEDING FATS SAFETY: Quality and safety of feeding fats obtained from waste or by-products from the food chain

Call number:	FP6-2003-Food-2-A	*Total Project Cost:*	2.034.398,00
Contract number:	007020	*EC Contribution:*	1.369.999,00
Contract type:	Specific Targeted Research Project	*Actionline:*	Recycling and upgrading organic wastes from the food chain in environmentally friendly healthy food production
Starting Date:	01/01/2005		
Duration (months):	36		
Project website:	www.ub.edu/feedfat		
DG responsible:	DG RTD	*Keyword:*	Aquaculture / Feed — Nutrition

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Fat by- and co-products from the food chain are a cost effective ingredient for animal feed producers, as well as a source of environmentally sustainable growth. However, poor regulation of both origin and quality of these materials allows toxic and undesirable compounds to enter the food chain. In its effort to assure food chain integrity, the European Union has taken steps to reduce chemical contamination of fats used in animal feeds, but many knowledge gaps remain. The nine partners of the Specific Targeted Research Project (STREP) Feeding Fats Safety will assess the risks of using recycled fats in animal feeds. They will identify and quantify these harmful compounds and propose ways to use fats safely. Europeans' exposure to dietary PCBs, dioxins and dioxin-like compounds widely exceeds maximum values set by the World Health Organisation. These contaminantss are fat-soluble carcinogens and are linked to many serious illnesses. Since they are fat-soluble, they bio-accumulate in adipose tissue over a lifetime. Maximum levels have been established in feeds for dioxins and furans but not for dioxin-like PCBs. Other liposoluble toxic compounds in foods are polycyclic aromatic hydrocarbons (PAHs), and some flame retardant compounds (PBDE), which are not well understood and for which maximum dietary levels have not been determined. Foods of animal origin contribute 80 % to the total dioxin human exposure, and feedstuffs are the primary path dioxins take to enter meat. Fish oils and fish meals are the most heavily dioxin-contaminated feedstuffs, followed by animal fats. Frying and cooking, and particularly some industrial processes such refining and hydrogenation, can provoke some alteration of fats, increasing the presence of trans fatty acids and oxidising lipids.

FEEDING FATS SAFETY's nine teams have expertise in veterinary science, chemistry, biochemistry, analysis and quality control, environment, and nutrition. They will take an inverse approach to the food chain, 'from fork to farm', to generate data about animal production. Starting with fat production and feed manufacture, they will follow feed throughout the production of meat for human consumption. The teams will characterise the chemical composition, degradation and contamination levels of a wide array of feeding fats constituting by-products or co-products from the food chain. They will study the effects of fat-enriched

feed on animal health and on meat's lipid composition, oxidation, nutritional quality and safety, and determine how contaminants get from fats into meat and other animal tissues and fluids.

The EU Directive EC Nº 178/2002 established general principles and requirements of food safety and law, including the safety of animal-feed ingredients. EU Regulation 1774/2002 introduced strict controls to prevent undesirable compounds entering the food chain via some but not all fat materials. FEEDING FATS SAFETY will generate more complete knowledge about composition, degradation and contamination characteristics of fatty by- and co-products. This will help improve standardisation, achieve strict quality regulation, and set maximum contaminant levels for more types of these feed fats. For industry, better reference standards, guidelines and quick, easy analysis methods will enable companies to assess quality and safety on-site, to ensure traceability in feed and meat production. Meat production based on food-chain co- and byproducts will enable environmentally sustainable farming systems for safe, nutritional and appetising meat. The project will promote collaboration between scientific institutions and companies across the EU and disseminate knowledge on feed fats to producers. It will also conduct an information campaign to educate consumers and improve confidence in the food chain.

Partners

• UNIVERSIDAD DE BARCELONA	Spain
• UNIVERSITY OF BOLOGNA	Italy
• STAZIONE SPERIMENTALE PER LE INDUSTRIE DEGLI OLI E GRASSI	Italy
• S.I.L.O. SRL	Italy
• UNIVERSIDAD POLITECNICA DE VALENCIA	Spain
• SVERIGE LANTBRUKSUNIVERSITEIT	Sweden
• UNIVERSIDAD AUTONOMA DE BARCELONA	Spain
• BORDEAUX 1 UNIVERSITY	France
• CENTRO DE BIOLOGIA MOLECULAR SEVERO OCHOA, CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS	Spain

IMAQUANIM: Improved immunity of aquacultured animals

Call number:	FP6-2003-Food-2-A	*Total Project Cost:*	10.538.140,00
Contract number:	007103	*EC Contribution:*	8.019.140,00
Contract type:	Integrated Project	*Actionline:*	Platform for improving the immunological status of livestock (including fish) for better disease protection
Starting Date:	01/04/2005		
Duration (months):	60		
Project website:	http://imaquanim.dfvf.dk/info/		
DG responsible:	DG RTD	*Keyword:*	Aquaculture / Disease

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Based on important disease models, the project concerns development of a technological knowledge platform for a future improved immunity to infectious pathogens in the major aquacultured species in Europe (Atlantic salmon, rainbow trout, sea bream, sea bass, carp and mussel). Focus will be put on use of vaccines, immuno-stimulants, immuno-diagnostic surveillance as well as markers for selection of the most immuno- competent individuals. Assays for qualitative and quantitative monitoring of key elements of the innate and adaptive immune system at genetic and functional levels will be established and used for determination of response profiles which correlate with protective immunity.

The use of antibiotics, drugs, and chemical disinfectants in the fish-farming industry can leave residues in food products and the environment. These can have harmful health effects on humans. In particular, released antibiotics can promote human disease causing agents to acquire resistance to anti-microbial drugs. More efficient vaccines, better diagnosis of diseases that affect fish, and improved sanitary controls have helped to significantly reduce antibiotic use in aquaculture, particularly for Atlantic salmon. This has led to better acceptance of fish farming among Europeans boosting growth in this industry. However, use of antibiotics continues. In order to curtail this practice, IMAQUANIM has brought together 17 universities and governmental research institutes, as well as five small and mediumsized enterprises (SMEs) working to develop technology to improve the disease immunity of Europe's major aquacultured species.

The immune system is not as well understood for finfish and shellfish as it is for mammals and other higher vertebrates. Successful bacterial vaccines were developed for salmon based mostly on trial and error. However, despite years of research, just a few vaccines have recently emerged against fish viruses, while none currently exist against fish parasites. One of IMAQUANIM's priorities is to improve basic knowledge of how fish acquire immunity to diseases. The research team will develop tools, such as gene arrays and antibodies, as well as assays for monitoring immune-relevant molecules and cell populations. The team will use these tools to characterise fish immune systems, to determine how efficient protection

against disease can be induced by vaccination, and to identify immunocompetent individuals for selective breeding. For finfish, the work will include trials with commercial and experimental vaccines. Infection trials with each major finfish and shellfish species with selected viral, bacterial or parasitic pathogens known to cause severe problems for European aquaculture will also be included. Scientists already know that invertebrates, such as shellfish, lack adaptive mechanisms and, thus, cannot be vaccinated in the sense of activating a memory-based immunity. Nevertheless, although shellfish immunity is strictly based on innate mechanisms, recent findings indicate that it can be bolstered by 'priming' these mechanisms. Since, at low temperatures, this is also true for finfish, IMAQUANIM will employ an integrated approach in its research to maximise the data's scientific and commercial potential.

IMAQUANIM'S data will provide a strong technological basis for qualified strategies to counteract rapidly known or new diseases in aquacultured fish. The resulting gene arrays and immuneresponse assays will be employed to develop efficient vaccines and feed-based immunostimulants for finfish species. They will also be used for genetic typing, immuno-competence monitoring and diagnostic surveillance for both finfish and shellfish. The project results will create a basis for the breeding of aquacultured animals that are immune to devastating infectious diseases. By contributing to improved animal health, IMAQUANIM will lead to higher quality food products, free of residuals of antibiotics or other chemicals, and to more environmentally friendly and cost-efficient fish farming. This will have a positive influence on consumer perceptions of aquaculture and encourage people to include more fish and shellfish in their diets.

Partners

• TECHNICAL UNIVERSITY OF DENMARK	Denmark
• UNIVERSITEIT WAGENINGEN	The Netherlands
• FISHERIES RESEARCH SERVICE	United Kingdom
• DEN KONGELIGE VETERINAER- OG LANDBOHOEJSKOLE	Denmark
• BIOMAR A/S	Denmark
• AQUACULTURE DIAGNOSTICS LIMITED	United Kingdom
• ALPHARMA, AQUATIC ANIMAL HEALTH	Norway
• GENECARE	Denmark
• BIONOSTRA	Spain
• DANISH INSTITUTE FOR FOOD AND VETERINARY RESEARCH	Denmark
• ISTITUTO ZOOPROFILATTICO SPERIMENTALE DELLE VENEZIE	Italy
• NORGES VETERINAERHOGSKOLE	Norway
• FRIEDRICH LOEFFLER INSTITUTE	Germany
• UNIVERSIDAD DE MALAGA	Spain
• MURCIA UNIVERSITY	Spain
• DEPT. OF GENERAL PSYCHOLOGY — UNIVERSITY OF PADOVA	Italy
• NORWEGIAN COLLEGE OF FISHERIES SCIENCE, UNIVERSITY OF TROMSO	Norway
• UNIVERSITA DEGLI STUDI DELLA TUSCIA	Italy
• VETERINARY RESEARCH INSTITUTE	Czech Republic
• SCOTTISH FISH IMMUNOLOGY RESEARCH CENTRE	United Kingdom
• UNIVERSIDAD AUTONOMA DE BARCELONA	Spain
• INSTITUTO DE INVESTIGACIONES MARINAS	Spain
• CENTRE DE LA RECHERCHE SCIENTIFIQUE	France

FOOD-7: Impact of animal feed on human health

List of projects

- AQUAMAX

AQUAMAX: Sustainable aquafeeds to maximise the health benefits of farmed fish for consumers

Call number:	FP6-2004-FOOD-3-A	*Total Project Cost:*	15.894.307,00
Contract number:	16249	*EC Contribution:*	10.500.000,00
Contract type:	Integrated Project	*Actionline:*	Impact of aquaculture feeds of different origins on human food quality, safety and health
Starting Date:	01/03/2006		
Duration (months):	48		
Project website:	http://www.aquamaxip.eu	*Keyword:*	Aquaculture / Feed — Nutrition
DG responsible:	DG RTD		

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The European Commission is striving to ensure that the food chain is risk-free at all stages of production and consumption. One of the specific areas of interest is fish feed used in aquaculture across the European Union. The fish feed used is currently based mainly on fishmeal and fish oil. The participants in the AQUAMAX project are seeking to develop sustainable alternative feed resources, resulting in highly nutritious and health-beneficial farmed fish. The aims of the project include improving contamination detection methods, health benefit assessments for the 'new-dietbased' farmed fish and studies into consumer perception and acceptance.

Aquaculture constitutes an important sector of European economy, with annual growth rates of approximately 5-9 %. In fact, the EU aquaculture industry is second only to its Asian counterpart. As growth of the sector continues, minimising the potential health hazards associated with fish products has become more urgent. These hazards pertain primarily to marine-derived toxic contaminants of fishmeal or fish oils, entering the food chain through the fish feeds used routinely on a global scale. The removal of certain contaminants closely associated with the fishmeal components of fish feed can prove extremely challenging, if not impossible. The objective of AQUAMAX is not to remove contaminants, but rather to avoid use of those ingredients that might be contaminated. This process enhances the overall nutritional value of farmed fish, and results in safer food products. At the molecular level, the new diets that are being developed will ensure compatibility with fish genetic profiles so as to maintain their health and welfare. Specific DNA monitoring techniques are being employed in order to study growth efficiency and overall performance. In essence, the overarching aim of AQUAMAX is the development of a range of 'tailored' feeds for freshwater and marine fish, which reflect a series of nutritional needs and consumer demands.

The AQUAMAX approach involves initiatives ranging from toxicogenomics and nutrigenomics to a nutritional trial involving pregnant women and infants. The objectives set forth in the project can only be realised through extensive collaboration with a series of partners pos-

sessing diverse sets of skills. Partners from China and India are working alongside academic and SME participants, combining their expertise through studies on the entire food chain, ranging from toxicological investigations to market validation of the new products. The project's impact is therefore significant, contributing to further growth and new employment opportunities for the EU aquaculture industry. At the same time, AQUAMAX aims to boost consumer confidence in the sector and its products by addressing a number of concerns in an effective and efficient manner. The outcomes of the project are to be disseminated to countries via the International Scientific Cooperation Programme (INCO), through education and knowledge exchange initiatives, with particular emphasis on Asian regions heavily involved in aquaculture. Continuous collaboration and ongoing association is expected to yield substantial benefits for the partners involved in AQUAMAX, as well as their parent organisations, for national agencies, and primarily for the public at large.

Partners

• NATIONAL INSTITUTE OF NUTRITION AND SEAFOOD RESEARCH	Norway
• HAVFORSKNINGSINSTITUTTET	Norway
• HELLENIC CENTER FOR MARINE RESEARCH	Greece
• FEDERATION OF EUROPEAN AQUACULTURE PRODUCERS	Belgium
• NUTRECO AQUACULTURE RESEARCH CENTRE	Norway
• INSTITUTE FOR NUTRITION AND FOOD SAFETY	China
• SELONDA AQUACULTURE S.A.	Greece
• RESEARCH INSTITUTE FOR FISHERIES AQUACULTURE AND IRRIGATION	Hungary
• CENTRAL INSTITUTE OF FRESHWATER AQUACULTURE, INDIAN COUNCIL OF AGRICULTURAL RESEARCH (ICAR)	India
• CADITEC TESTING S.L.	Spain
• TEUTOBURGER OLMUHLE GMBH AND CO.KG	Germany
• TECHNOLOGY CROPS LIMITED	United Kingdom
• LANDCATCH NATURAL SELECTION LTD	United Kingdom
• WOW CREATIVE PROJECTS	Greece
• GALOSI BARKA HALASZATI KFT.	Hungary
• HALANDOR KFT.	Hungary
• PEIPSI CENTER FOR TRANSBOUNDARY COOPERATION	Estonia
• UNIVERSIDAD DE GRANADA	Spain
• BIOLOGICAL RESEARCH CENTER	Hungary
• VIVIERS DE FRANCE	France
• MARINE HARVEST NORWAY	Norway
• ISTITUTO SUPERIORE DI SANITA	Italy
• KING'S COLLEGE LONDON	United Kingdom
• UNIVERSITE D'AUVERGNE	France
• THE UNIVERSITY OF READING	United Kingdom
• THE UNIVERSITY OF STIRLING	United Kingdom
• SWEDISH COLLEGIUM FOR ADVANCED STUDY IN THE SOCIAL SCIENCES — UPPSALA UNIVERSITET	Sweden
• ALPHA MOS S.A.	France
• INSTITUT NATIONAL DE LA RECHERCHE AGRONOMIQUE	France
• CENTRO DE BIOLOGIA MOLECULAR SEVERO OCHOA, CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS	Spain
• DEPARTMENT OF MATHEMATICS, UNIVERSITY OF SOUTHAMPTON	United Kingdom
• COMMISSION OF THE EUROPEAN COMMUNITIES — DG JOINT RESEARCH CENTRE	Belgium

FOOD-9: Specific Support Actions

List of projects

- CODE-EFABAR

CODE-EFABAR: Code of Good Practice for Farm Animal Breeding and Reproduction

Call number:	FP6-2002-FOOD-1	*Project website:*	www.code-efabar.org
Contract number:	506506	*DG responsible:*	DG RTD
Contract type:	Specific Support Action	*Total Project Cost:*	300.000,00
Starting Date:	01/02/2004	*EC Contribution:*	300.000,00
Duration (months):	18	*Keyword:*	Aquaculture / Welfare

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European farm animal breeders want to demonstrate to the public their concern over animal welfare and the environment by creating a Code of Good Practice for Farm Animal Breeding and Reproduction. This will be done in an 18-month EU Specific Support Action (CODE-EFABAR). The Code will help breeders to demonstrate in a transparent and verifiable way what their goals are and how they can achieve them. Animals used for breeding are a special case as their genetic make-up is passed on to future generations of stock.

The breeding and reproduction standards suggested will apply to cattle, pigs, poultry and fish. Breeding is the first link in the food chain producing meat, milk, fish and eggs, which makes up a significant part of agricultural production. It includes choice of breed, selection, genes, animal welfare, genetic diversity, public and animal health, food quality and the environment. An earlier EU-funded project on animal breeding, Sustainable European Farm Breeding and Production (SEFABAR), found that breeders do have a reliable image for providing the information consumers want. SEFABAR's conclusions about sustainable breeding, which took into account ethical, sociological, welfare, and economic work, are essential in the outline of this project.

The Code aims to build trust among consumers and create transparency for European citizens, as well as towards farmers who are the customers of animal breeders. While some larger producers might be able to draw up their own codes, a high proportion of European farm animal breeders are small or medium-sized enterprises (SMEs). In any case, a universal code can be written and checked more carefully and should prove more widely acceptable to society as a whole. An association of breeders from northern and southern Europe, the European Forum of Farm Animal Breeders (EFFAB, formerly Farm Animal Industrial Platform – FAIP), will draft the technical sections of the Code. The bioethical and riskassessment elements will be researched by a bioethical centre in Denmark, while the European Forum of Biotechnology will deal with communication, and Société Générale de la Surveillance will provide verification and certification information. The draft Code will be discussed at a workshop for NGOs and European breeders before the final version is refined and published. A verification and certification mechanism is planned to allow breeders to develop their own

standards within the Code, and to have them approved and publicised in the way they choose. The strategy for spreading awareness of the Code will include its publication on the SEFABAR website (*www.sefabar.org/codeefabar*) alongside information for those involved in the food chain, politicians and NGOs. Brochures for breeders will be published in several languages and breeding organisations will be trained to apply the Code. At the end of the project, EFFAB (FAIP) will take responsibility for maintaining the Code.

The prime effect of the Code will be greater transparency about European farm animal breeding practices which, it is hoped, will make consumers more confident about the quality and safety of farm animal products. In addition, it will increase the competitiveness of Europe's animal breeding and reproduction sector. The Code will demonstrate the professionalism of breeding organisations. It will play a part in preserving traditional breeds, in marketing local food varieties, and in creating new markets for indigenous breeds from eastern European accession countries. It is important to stress that European farm animal breeders have declared that they have no interest in the use of genetic modification or cloning for food production. These technologies do not bring advantages for food production. Moreover, European consumers do not want these technologies to be applied, and this wish is being respected by means of, among other tools, a verifiable and transparent Code.

Partners

• EUROPEAN FORUM OF FARM ANIMAL BREEDERS	The Netherlands
• DEN KONGELIGE VETERINAER- OG LANDBOHOEJSKOLE	Denmark
• SEMENITALY S.R.L.	Italy
• BADI BEN MUSTAPHA BESBES ISA	France
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• EUROPEAN FEDERATION OF BIOTECHNOLOGY	The Netherlands
• SOCIETE GENERALE DE LA SURVEILLANCE	The Netherlands
• SVENSK AVEL	Sweden
• LOHMANN TIERZUCHT GMBH	Germany
• AQUA GEN AS	Norway
• INSTITUTE FOR PIG GENETICS B.V.	The Netherlands
• INSITITUT DE RECERCA I TECHNOLOGICA AGROALIMENTARES	Spain

Priority 6: Sustainable development, global change and ecosystems

- **SUSTDEV-3**

Fishermen at work
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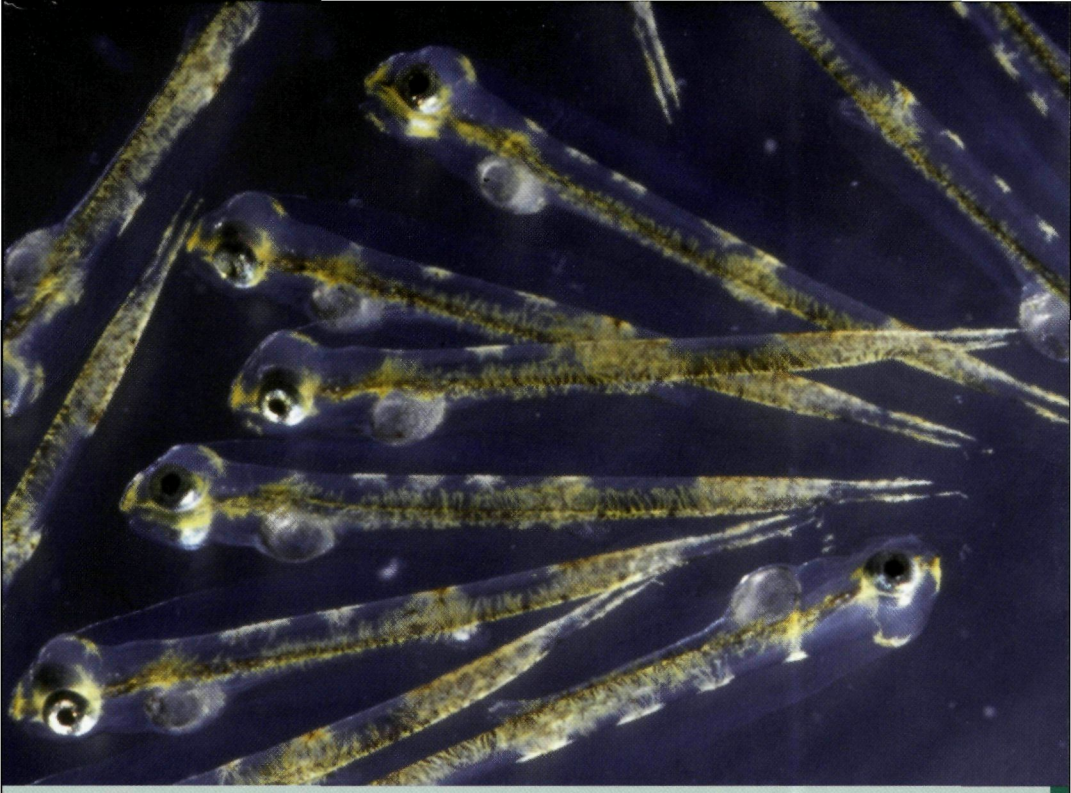

SUSTDEV-3: Global change and ecosystems

SUSTDEV-3.3

SUSTDEV-3.5

SUSTDEV-3.8

Seabass larvae (*Dicentrarchus labrax*)

SUSTDEV-3.3: Biodiversity and ecosystems

List of projects

- BASIN
- COBO
- DAISIE
- ELME
- ESTTAL
- EUR-OCEANS
- FISH & CHIPS
- HABIT
- HERMES
- MARBEF
- MARINE GENOMICS
- SEED
- SESAME

BASIN: Resolving the impact of climatic processes on ecosystems of the North Atlantic basin and shelf seas: Integrating and advancing observation, monitoring, and prediction

Call number:	FP6-2005-Global-4	*EC Contribution:*	115.071,00
Contract number:	037126	*Actionline:*	Risk assessment, management, conservation and rehabilitation options in relation to terrestrial and marine ecosystems
Contract type:	Specific Support Action		
Starting Date:	01/07/2006		
Duration (months):	18		
Project website:	http://www.globec.org/	*Keyword:*	Marine Environment / Fisheries / Climate change
DG responsible:	DG RTD		
Total Project Cost:	133.300,00		

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The scale of influence of global change and the added value of coordinating the scientific activities of the EU and North American countries to assess, predict and mitigate the effects on marine ecosystems of the North Atlantic and their services is the justification for the development of the BASIN Specific Support Action (SSA). An important step towards such a coordinated approach is the development of an implementation plan where by jointly funded international projects can be supported. The development of such a plan is the first key goal of BASIN. The second goal of BASIN is to develop an integrated basin-scale North Atlantic research program, for submission to the EU 7th framework program, US NSF and Canadian NSERC for joint funding. Programmatic goals will be achieved in working groups including experts from both the EU and North America as well as delegates from funding organisations. As a prerequisite for the development of the research proposal, this SSA will (1) assess the status of climate related ecosystem research in the North Atlantic basin and associated shelf seas, (2) identify gaps in systematic observations and process understanding of atmospheric and oceanic parameters, (3) identify the potential for consolidation of long-term observations from EU and international databases for modelling and prediction. The BASIN research program will focus on: Resolving the natural variability, potential impacts and feedbacks of global change on the structure, function and dynamics of ecosystems; Improving the understanding of marine ecosystem functioning; Developing ecosystem based management strategies. Hence, BASIN will contribute significantly to the Global Earth Observation System of Systems (GEOSS) 10-Year Implementation Plan via the development of comprehensive, coordinated, and sustained observations of the Earth System, improved monitoring of the state of the Earth, increased understanding of Earth processes, and enhanced prediction.

Partners

• UNIVERSITAT HAMBURG.	Germany
• PLYMOUTH MARINE LABORATORY	United Kingdom

COBO: Integrating new technologies for the study of benthic ecosystem response to human activity: towards a Coastal Ocean Benthic Observatory

Call number:	FP6-2002-GLOBAL-1	*EC Contribution:*	1.999.485,00
Contract number:	505564	*Actionline:*	Cost effective, reliable and efficient technologies for enabling progress in biodiversity and ecosystem science
Contract type:	Specific Targeted Research Project		
Starting Date:	01/03/2004		
Duration (months):	36		
Project website:	http://www.ist-world.org/	*Keyword:*	Marine Environment / Fisheries / Ecosystem Functioning
DG responsible:	DG RTD		
Total Project Cost:	2.889.410,00		

Coordinator Prof Shimmield Graham
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Coastal ecosystems are particularly vulnerable to anthropogenic perturbation, affecting biodiversity and ecosystem stability and resilience. Shallow water sediments and their associated biota represent a reservoir for biodiversity, hosting resting and reproductive stages of planktonic organisms, and regulating carbon and nutrient biogeochemical cycles. However, the relationship between tightly coupled biological and geochemical processes in this environment is poorly defined with respect to their temporal and spatial variability. The overall objective of COBO is to integrate emerging and innovative technologies from different disciplines (physics, chemistry, biology, imagery) to provide in situ monitoring of sediment habitats, a key component of coastal marine ecosystems, in order to understand complex interactions between the biota (function and diversity) and their chemical environment. Existing technologies have limited spatial and temporal sampling resolutions and this has hampered progress in determining key parameters and in explaining biogeochemical patterns / processes and in modelling ecosystem dynamics. Improved in situ technologies are required to provide rigorous scientific information on processes regulating this unique and fragile habitat and for assessing, controlling and minimising human impact on European coastal waters thus addressing societal need. Organism-sediment processes, with both enhancing and mediating effects, are still poorly understood in shallow water sediments that receive the bulk of anthropogenic disturbance. The combination of innovative instruments from the different disciplines will provide powerful tools to significantly advance our understanding of organism sediment relations under dynamic coastal conditions and enhance predictive capability. COBO represents a major step towards the development of permanently operating benthic observatories for coastal management.

Partners

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• CENTRE DE LA RECHERCHE SCIENTIFIQUE	France

DAISIE: Delivering Alien Invasive Species Inventories for Europe

Call number:	FP6-2003-Global-2	*Total Project Cost:*	3.450.131,00
Contract number:	511202	*EC Contribution:*	2.400.000,00
Contract type:	Specific Targeted Research Project	*Actionline:*	Create an inventory of invasive species
Starting Date:	01/02/2005		
Duration (months):	36	*Keyword:*	Marine Environment / HAB / Fisheries / Aquaculture
Project website:	http://www.ist-world.org/		
DG responsible:	DG RTD		

Coordinator Mrs Claridge Sarah
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Effective control of invasive alien species has been hampered by: a) the lack of monitoring for alien species at frequent enough intervals in regions of concern; b) a means to report, verify the identifications, and warn of new sightings; and c) risk assessments that predict the likelihood of a particular species becoming invasive. Europe has yet to establish a programme with the primary goal of detection, quantifying the possible risk, and warning managers before a respective alien species spreads beyond its point of initial introduction. Such a programme should provide: a warning system to alert regional managers, an inventory of alien species against which invasive alien species can be determined, a European information dissemination system, an early detection and monitoring system for alien species. In response to these requirements, DAISIE will deliver a European 'one-stop-shop' for information on biological invasions in Europe which will bring together: (1) the European Alien Species Expertise Registry including a directory of researchers and research; (2) European Alien Species Database including all known naturalized alien species in Europe; (3) European Invasive Alien Species Information System describing all naturalized alien species known to be invasive in Europe; (4) Species Distribution Maps and Spatial Analysis with distribution maps of all invasive alien species in Europe known or suspected of having environmental or economic impacts. DAISIE will be a pivotal instrument in developing a Europe-wide strategy that encompasses both the geographical scale of the problem and unites the study of different taxa in marine, freshwater and terrestrial environments. DAISIE will address the need for a regional network of invasive alien species information.

Partners

• NATIONAL OCEANGRAPHIC CENTRE	United Kingdom
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• MARINE ORGANISM INVESTIGATIONS	Ireland
• GOLLASCH CONSULTING	Germany
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• KLAIPEDA UNIVERSITY	Lithuania
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• ZOOLOGICAL INSTITUTE OF RUSSIAN ACADEMY OF SCIENCES	Russia
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• BOTANICKY USTAV, AKADEMIE VED CESKE REPUBLICKY	Czech Republic
• INSTITUT NATIONAL DE LA RECHERCHE AGRONOMIQUE	France

ELME: European Lifestyles and Marine Ecosystems

Call number:	FP6-2002-GLOBAL-1	*Total Project Cost:*	3.217.530,00
Contract number:	505576	*EC Contribution:*	2.499.990,00
Contract type:	Specific Targeted Research Project	*Actionline:*	Generating models of socioeconomic impacts on biodiversity and ecosystems.
Starting Date:	01/01/2004		
Duration (months):	36		
Project website:	http://www.elme-eu.org	*Keyword:*	Marine Environment / Fisheries / Ecosystem Functioning
DG responsible:	DG RTD		

Coordinator Prof Mee Laurence
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Drake Circus – PL4 8AA Plymouth Devon — United Kingdom

Marine ecosystems possess great intrinsic value as reserves of biological diversity and are vital providers of goods and services to humanity. However, they are often disregarded during economic and social development. Europe's four sea areas; the Baltic, NE Atlantic, Mediterranean and Black Sea have each paid a heavy price for unsustainable development within their catchments and sea areas. Their ecosystems have suffered to differing degrees from eutrophication, chemical pollution, unsustainable fisheries and physical destruction of habitats. This damage is closely connected with human lifestyles throughout the continent. The future integrity of marine systems depends on our approach to European development in the coming decades. Bringing marine ecosystems into policies for sustainable development requires better information on the causal connections between human pressures and the changing state of the systems. This is particularly important at a time when the European Community is expanding, re-examining its agricultural and chemical policies, implementing a new fisheries policy and exploring new ways to protect marine systems. ELME will enhance understanding of causality, forecast the impacts of divergent development scenarios and inform evolving Community policies. Current interdisciplinary knowledge linking lifestyles with their marine environmental consequences is widely dispersed. ELME brings together a necessarily large consortium, covering all relevant disciplines and regions. It integrates existing knowledge of environmental state changes, sectoral pressures and social and economic drivers using a common conceptual model. It will select contextual indicators for each causal level and model the relationships between them. These models will be applied to plausible development scenarios with particular focus on the accession process, to explore possible consequences for the stated four marine ecosystems. Results diffused to stakeholders.

Partners

• UNIVERSITY OF PLYMOUTH	United Kingdom
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• INSTITUTE FOR EUROPEAN ENVIRONMENTAL POLICY	United Kingdom
• INSTITUTE OF MARINE BIOLOGY OF CRETE	Greece
• INSTITUT FUR OSTSEEFORSCHUNG WARNEMUNDE	Germany
• ALFRED WEGENER INSTITUTE FOR POLAR AND MARINE RESEARCH	Germany
• MARINE BIOLOGICAL ASSOCIATION OF THE UK	United Kingdom
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• INSTITUTE OF OCEANOLGY-BAS	Bulgaria
• INSTITUTUL NATIONAL DE CERCETARE — DEZVOLTARE MARINA	Romania
• MORSKI INSTYTUT RYBACKI	Poland
• GDANSK UNIVERSITY OF TECHNOLOGY	Poland
• LABORATORIO ASSOCIADO CICECO UNIVERSIDADE DE AVEIRO	Portugal
• THE UNIVERSITY OF BATH	United Kingdom
• THE UNIVERSITY OF HULL	United Kingdom
• DIPARTIMENTO DI SCIENZE E TECHNOLOGIE, BIOLOGICHE ED AMBIENTALI, UNIVERSITA DEL SALENTO	Italy
• DEPT. OF GENERAL PSYCHOLOGY — UNIVERSITY OF PADOVA	Italy
• EUSKAL HERRIKO UNIBERTSITATEA	Spain
• STOCKHOLMS UNIVERSITET	Sweden
• AZTI FUNDAZIOA	Spain
• CNR ISTITUTO DI PROCESSI CHIMICA-FISICA — SEZIONE DI MESSINA	Italy
• NOTTINGHAM TRENT UNIVERSITY	United Kingdom
• UNIVERSITETET I BERGEN	Norway
• CENTRO DE BIOLOGIA MOLECULAR SEVERO OCHOA, CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS	Spain

ESTTAL: Expressed sequence tags of toxic Algae

Call number:	FP6-2003-Global-2	*DG responsible:*	DG RTD
Contract number:	511154	*Total Project Cost:*	1.785.202,00
Contract type:	Specific Targeted Research Project	*EC Contribution:*	1.399.999,00
Starting Date:	22/03/2005	*Actionline:*	Harmful algal blooms in European marine and brackish waters
Duration (months):	36		
Project website:	http://genome.imb-jena.de/ESTTAL/cgi-bin/Index.pl	*Keyword:*	Marine Environment / HAB / Fisheries / Aquaculture

Coordinator Dr John Uwe
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Harmful algal blooms (HABs) are caused by local proliferation of algae, with deleterious consequences, particularly in coastal waters throughout the world. Negative environmental effects include toxicity to human consumers of seafood, marine faunal mortalities or morbidity, habitat damage, disruption of marine food webs and economic losses to fishing, aquaculture and tourism. In Europe, socioeconomic factors and human health risk have led to comprehensive surveillance programmes for harmful micro-algae and their toxins. Among harmful micro-algae and cyanobacteria in European marine and brackish waters, many produce potent neurotoxins, ichthyotoxins or hepatotoxins. Although structural elucidation of many of these groups of toxins has advanced, much less is known about biosynthetic pathways and gene regulation in toxigenic species. We propose a limited genomic study of expressed sequence tags (ESTs) for toxigenic representatives of major eukaryotic micro-algal groups, including dinoflagellates, raphidophytes, prymnesiophytes and diatoms, and cyanobacteria. Cultures will be grown under various environmental conditions to investigate the effects of external forcing functions on gene expression linked to toxicity and growth. After cloning of cDNA of toxigenic strains pooled from cultures grown under these different conditions into plasmid vectors, about 10 000 clones from each taxon will be randomly sequenced for ESTs. Our approach is to annotate ESTs and attempt identification of genes associated with toxin production, growth regulation, cell cycle, stress responses and induction of sexuality. DNA micro-arrays will be developed for analyse the gene expression of the differently treated cultures. Successful completion of this project will yield new information on micro-algal and cyanobacterial genomic sequences for a diversity of taxa and will assist in the diagnosis of genes related to toxin biosynthesis.

Partners

• ALFRED WEGENER INSTITUTE FOR POLAR AND MARINE RESEARCH	Germany
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• STAZIONE ZOOLOGICA 'ANTON DOHRN'	Italy
• THE UNIVERSITY OF BRISTOL	United Kingdom

EUR-OCEANS: EURopean network of excellence for OCean Ecosystems ANalysiS

Call number:	FP6-2003-Global-2	*EC Contribution:*	10.000.000,00
Contract number:	511106	*Actionline:*	Develop models at the level of the open ocean for assessing and forecasting the impact of climate and anthropogenic forcing in pelagic ecosystem
Contract type:	Network of Excellence		
Starting Date:	01/01/2005		
Duration (months):	48		
Project website:	http://www.eur-oceans.eu/index.php	*Keyword:*	Marine Environment / Fisheries / Ecosystem Functioning
DG responsible:	DG RTD		
Total Project Cost:	40.000.000,00		

Coordinator Mr Benoit Jean-Jean
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EUR-OCEANS aims to achieve lasting integration of European research organisations on global change and pelagic marine ecosystems, and to develop models for assessing and forecasting the impacts of climate and anthropogenic forcing on food-web dynamics (structure, functioning, diversity and stability) of pelagic ecosystems in the open ocean. The Network of Excellence (NoE) will favour the progressive integration of research programmes and facilities of major research Institutes all over Europe. The long-term goal of the NoE is to create a multi-site Institute for European research on ocean ecosystems under anthropogenic and Natural forcing. The international context is provided by Global Ocean Ecosystem Dynamics (GLOBEC), and the forthcoming Integrated Marine Biogeochemistry and Ecosystem Research (IMBER) of the International Geosphere Biosphere Programme (IGBP). EUR-OCEANS' Joint Programme of Activities (JPA) comprises: (1) Integrating activities on networking (data and model integration); (2) Jointly executed research, organised around four broad modelling tasks (together with observations and experiments) on pelagic ecosystems end-to-end, biogeochemistry, ecosystem approach to marine resources and within-system integration; (3) Activities to spread excellence, including training of researchers, and spreading excellence to socioeconomic users and to the European public (through the Association of Aquaria for EUR-OCEANS public outreach); (4) Management Activities. Administrative and Financial Coordinator: Institut Oceanographique; Governing bodies: General Assembly (Member Organisations); Executive Committee (incl. Scientific Director and the Deputy); Steering Committee (incl. Work Packages Leaders); Councils: Scientific, Intellectual, Gender Equality, and EUR-OCEANS Institutes. Composition: 69 Member Organisations, from 25 States (incl. 7 Third countries); 160 participants selected for their capacity and excellence. Close cooperation with the USA, Australia, Canada, Namibia and Japan.

Partners

• FIST S.A. — FRANCE INNOVATION SCIENTIFIQUE ET TRANSFERT	France
• UNIVERSITATSKLINIKUM HAMBURG-EPPENDORF	Germany
• UNIVERSITY OF GOTEBORG	Sweden
• UNIVERSITEIT WAGENINGEN	The Netherlands
• HAVFORSKNINGSINSTITUTTET	Norway
• FISHERIES RESEARCH SERVICE	United Kingdom
• HELLENIC CENTER FOR MARINE RESEARCH	Greece
• INSTITUTO DE INVESTIGACAO AGRARIA E DAS PESCAS — IPIMAR	Portugal
• LATVIAN FISHERIES RESEARCH INSTITUTE	Latvia
• UNIVERSIDAD DE VIGO	Spain
• CENTER OF OCEANOGRAPHY FOR THE EASTERN SOUTH PACIFIC	Chile
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• INSTITUT DES SCIENCES DE LA MER ET DE L'AMENAGEMENT DU LITTORAL	Algeria
• SOPAB-BREST	France
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• *IMPERIAL COLLEGE FOR SCIENCE, TECHNOLOGY AND MEDICINE*	*United Kingdom*
• INSTITUTO ESPANOL DE OCEANOGRAFIA	Spain
• INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	France
• INSTITUT FUR OSTSEEFORSCHUNG WARNEMUNDE	Germany
• ALFRED WEGENER INSTITUTE FOR POLAR AND MARINE RESEARCH	Germany
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• INSTITUTE FOR MEDICAL IMMUNOLOGY	Belgium
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• STOCKHOLMS UNIVERSITET	Sweden
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• INSTITUT NATIONAL DE RECHERCHE HALIEUTIQUE	Morocco
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• CENTER FOR MOLECULAR NEUROBIOLOGY, HAMBURG UNIVERSITY	Germany
• CENTRO DE BIOLOGIA MOLECULAR SEVERO OCHOA, CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS	Spain
• THE UNIVERSITY OF WARWICK	United Kingdom
• AARHUS UNIVERSITET	Denmark
• DEPARTMENT OF MATHEMATICS, UNIVERSITY OF SOUTHAMPTON	United Kingdom
• CENTRE DE LA RECHERCHE SCIENTIFIQUE	France
• UNIVERSIDAD DE LAS PALMAS DE GRAN CANARIA	Spain
• PLYMOUTH MARINE LABORATORY	United Kingdom

FISH & CHIPS: Towards DNA chip technology as a standard analytical tool for the identification of marine organisms in biodiversity and ecosystem science

Call number:	FP6-2002-GLOBAL-1	*Total Project Cost:*	2.245.159,00
Contract number:	505491	*EC Contribution:*	1.599.872,00
Contract type:	Specific Targeted Research Project	*Actionline:*	Cost effective, reliable and efficient technologies for enabling progress in biodiversity and ecosystem science
Starting Date:	01/01/2004		
Duration (months):	39		
Project website:	http://www.fish-and-chips.uni-bremen.de	*Keyword:*	Fisheries / Traceability
DG responsible:	DG RTD		

Coordinator Prof. Blohm Dietmar
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Sustainable development is a fundamental goal of the European Union and loss of biodiversity is emphasised as one of the main threats to it. However, biodiversity and ecosystems of European Seas are under human impact, such as pollution, eutrophication, and overfishing. Therefore it is necessary to monitor changes in biodiversity and ecosystem functioning. The aim of the project is the development of DNA chips for the identification of marine organisms in European Seas as a cost effective, reliable and efficient technology in biodiversity and ecosystem science. Many marine organisms, such as eggs and larvae of fishes, plankton, and benthic invertebrates, are difficult to identify by morphological characters. The classical methods are extremely time consuming and require a high degree of taxonomie expertise. Consequently, the basic step of identifying such organisms is a major bottleneck in biodiversity and ecosystem science. Therefore, the project seeks to demonstrate that DNA chips can be a new powerful and innovative tool for the identification of marine organisms. Three DNA chips for the identification of fishes, phytoplankton, and invertebrates of European Seas will be developed. These chips will facilitate research on dispersal of ichthyoplankton, monitoring of phytoplankton, and identification of bioindicators as well as prey in gut contents analysis. To achieve this goal a combined biological and technical approach has been initiated: The biological material will be sampled by marine biologists. The next step is the sequencing of suitable molecular markers for probe design. The technical part consists mainly in constructing gene probe libraries and determining their specificity. This will be done by biotech research centres in connection with SMEs engaged in bioinformatics and DNA chip technology. Therefore the project has the potential to bring Europe's marine biotechnology to the forefront of this field.

Partners

• CENTRE FOR APPLIED GENSENSORIK AT THE UNIVERSITY OF BREMEN	Germany
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• INFOCONSULT GESELLSCHAFT FUR INFORMATIONSTECHNIK MBH	Germany
• EXIQON A/S	Denmark
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• PROKARIA EHF	Iceland
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• UNIVERSIDAD DE OVIEDO	Spain
• CENTRE DE LA RECHERCHE SCIENTIFIQUE	France

HABIT: Harmful Algal Bloom species in Thin Layers

Call number:	FP6-2003-Global-2	*Total Project Cost:*	1.759.344,00
Contract number:	003932	*EC Contribution:*	949.932,00
Contract type:	Specific Targeted Research Project	*Actionline:*	Harmful algal blooms in European marine and brackish waters
Starting Date:	01/06/2005		
Duration (months):	36	*Keyword:*	Marine Environment / HAB / Fisheries / Aquaculture
Project website:	http://www.cefas.co.uk/habit		
DG responsible:	DG RTD		

Coordinator Dr Watson Joseph
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The project HABIT researches the development and dispersion of HAB populations in subsurface micro-layers. It focuses on a genus of phytoplankton that has a serious impact on the economic development of the European coastal zone and which frequently occurs in subsurface, thin micro-layers. The overall objectives of HABIT are to resolve fundamental patterns in the occurrences of Dinophysis and quantify the processes that are important in governing their distribution. To this end, the project HABIT will (1) investigate the maintenance and persistence of high density thin layers through studying interactions between fine scale physical diffusion and net growth and trophic relationships within them; (2) investigate the precise role of small scale structures on the coastal shelf as incubators for accumulations of Dinophysis; and (3) utilise physical models to examine the formation and persistence of gyres on the shelf, to predict their transport, and as a consequence HAB events at the coast. A high-resolution vertical profiler will be utilised in tandem with a moored profiling system currently in use in the US for studying HAB species occurrences. Thin layers of Dinophysis will be identified. Small-scale physical processes (vertical and horizontal diffusion) will be measured and related to net growth. Results will allow an overview of the balance between dispersion and accumulation in the layers and the time-scale of their persistence. Retention zones and other small-scale structures on the coastal shelf will be investigated as incubators for thin layers of HABs using quality physical models to model and predict the formation, persistence and movement of these structures. In this way, potential incubator sites will be shown to depend on the hydrodynamic regime of the coastal ocean. The origins of HAB events will be identified and essential information given to managers, as the only mitigation action possible for naturally occurring events lies in their prediction.

Partners

• NATIONAL UNIVERSITY OF IRELAND, GALWAY	Ireland
• THE CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE	United Kingdom
• INSTITUTO ESPANOL DE OCEANOGRAFIA	Spain
• INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	France

HERMES: Hotspot Ecosystem Research on the Margins of European Seas

Call number:	FP6-2003-Global-2	*Total Project Cost:*	21.828.715,00
Contract number:	511234	*EC Contribution:*	14.999.974,00
Contract type:	Integrated Project	*Actionline:*	Integrated research on ecosystems lying in the deeper ocean section
Starting Date:	01/04/2005		
Duration (months):	48		
Project website:	http://www.eu-hermes.net/	*Keyword:*	Marine Environment / Fisheries / Ecosystem Functioning
DG responsible:	DG RTD		

Coordinator Prof. Weaver Philip
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HERMES is designed to gain new insights into the biodiversity, structure, function and dynamics of ecosystems along Europe's deep-ocean margin. It represents the first major attempt to understand European deep-water ecosystems and their environment in an integrated way by bringing together expertise in biodiversity, geology, sedimentology, physical oceanography, microbiology and biogeochemistry, so that the generic relationship between biodiversity and ecosystem functioning can be understood. Study sites will extend from the Arctic to the Black Sea and include open slopes, where landslides and deep-ocean circulation affect ecosystem development, and biodiversity hotspots, such as cold seeps, cold-water coral mounds, canyons and anoxic environments, where the geosphere and hydrosphere influence the biosphere through escape of fluids, presence of gas hydrates and deep-water currents. These important systems require urgent study because of their possible biological fragility, unique genetic resources, global relevance to carbon cycling and possible susceptibility to global change and man-made disturbances. Past changes, including catastrophic events, will be assessed using sediment archives. We will make estimates of the flow rates of methane from the geosphere and calculate how much is utilised by benthic communities, leaving the residual contribution to reach the atmosphere as a greenhouse gas. HERMES will enable forecasting of biodiversity change in relation to natural and man-made environmental changes by developing the first comprehensive pan-European margin Geographic Information System. This will provide a framework for integrating science, environmental modelling and socioeconomic indicators in ecosystem management. The results will underpin the development of a comprehensive European Ocean and Seas Integrated Governance Policy enabling risk assessment, management, conservation and rehabilitation options for margin ecosystems.

Partners

• NATIONAL OCEANGRAPHIC CENTRE	United Kingdom
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• HAVFORSKNINGSINSTITUTTET	Norway
• HELLENIC CENTER FOR MARINE RESEARCH	Greece
• SCOTTISH ASSOCIATION FOR MARINE SCIENCE	United Kingdom
• PRAESENTIS, S.L.	Spain
• IFM-GEOMAR LEIBNIZ INSTITUT FUR MEERESWISSENSCHAFTEN	Germany
• INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION OF Unesco	France
• VOLCANIC BASIN PETROLEUM RESEARCH AS	Norway
• FACULTY OF PHYSICS, LOMONOSOV MOSCOW STATE UNIVERSITY	Russia
• MEDIAN SCP	Spain
• MMCD MULTIMEDIA CONSULTING GMBH	Germany
• OLEX AS	Norway
• ARCHIMEDIX MULLER, MUNZEL, PUTSCHBACH GESELLSCHAT BIRGERLINCHEN RECHTS (GBR)	Germany
• DEU INSTITUTE OF MARINE SCIENCES AND TECHNOLOGY (DENIZ BILIMLERI VE TEKNOLOJISI ENSTIT\S\)	Turkey
• PROTEUS SA	France
• UNITED NATIONS ENVIRONMENT PROGRAMME	Kenya
• INTERNATIONAL UNIVERSITY BREMEN	Germany
• FRITZ-HABER-INSTITUT DER MAX-PLANCK-GESELLSCHAFT	Germany
• A.O. KOVALEVSKIY INSTITUTE OF BIOLOGY OF SOUTHERN SEAS — UKRANIAN NATIONAL ACADEMY OF SCIENCES	Ukraine
• INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	France
• INSTITUTO HIDROGRAFICO	Portugal
• HORIBA JOBIN YVON S.A.S.	France
• ALFRED WEGENER INSTITUTE FOF POLAR AND MARINE RESEARCH	Germany
• HUBRECHT LABORATORY /KNAW	The Netherlands
• STICHTING KONINKLIJK NEDERLANDS INSTITUUT VOOR ONDERZOEK DER ZEE	The Netherlands
• ISTITUTO NAZIONALE DI OCEANOGRAFIA E DI GEOFISICA SPERIMENTALE	Italy
• P.P. SHIRSHOV INSTITUTE OF OCEANOLOGY OF THE RUSSIAN ACADEMY OF SCIENCES	Russia
• INSTITUTUL NATIONAL DE CERCETARE-DEZVOLTARE PENTRU GEOLOGIE SI GEOECOLOGIE MARINA	Romania
• LABORATORIO ASSOCIADO CICECO UNIVERSIDADE DE AVEIRO	Portugal
• THE UNIVERSITY OF BIRMINGHAM	United Kingdom
• UNIVERSITE BRETAGNE OCCIDENTALE	France
• CENTRE FOR APPLIED GENSENSORIK AT THE UNIVERSITY OF BREMEN	Germany
• FRIEDRICH-ALEXANDER-UNIVERSITAT ERLANGEN-NC<RNBERG	Germany
• THE UNIVERSITY OF LIVERPOOL	United Kingdom
• FACULTE DES SCIENCES UNIVERSITEMOHAMMED V-AGDAL	Morocco
• INSTITUT DE MATHEMATIQUES DE JUSSIEU	France
• NATIONAL UNIVERSITY OF IRELAND, GALWAY	Ireland
• NORWEGIAN COLLEGE OF FISHERIES SCIENCE, UNIVERSITY OF TROMSO	Norway
• ODESSA NATIONAL I.I. MECHNIKOV UNIVERSITY	Ukraine
• CONSORZIO NAZIONALE INTERUNIVERSITARIO PER LE SCIENZE DEL MARE	Italy
• CHALLENGER OCEANIC SYSTEMS AND SERVICES	United Kingdom
• GENT UNIVERSITY	Belgium
• THE UNIVERSITY COURT OF THE UNIVERSITY OF ABERDEEN	United Kingdom
• CNR ISTITUTO DI PROCESSI CHIMICA-FISICA — SEZIONE DI MESSINA	Italy
• UNIVERSIDAD DE BARCELONA	Spain
• CARDIFF UNIVERSITY	United Kingdom
• CENTRO DE BIOLOGIA MOLECULAR SEVERO OCHOA, CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS	Spain
• DEPARTMENT OF MATHEMATICS, UNIVERSITY OF SOUTHAMPTON	United Kingdom
• CENTRE DE LA RECHERCHE SCIENTIFIQUE	France

MARBEF: Marine biodiversity and ecosystem functioning

Call number:	FP6-2002-GLOBAL-1	*Total Project Cost:*	8.707.000,00
Contract number:	505446	*EC Contribution:*	8.707.000,00
Contract type:	Network of Excellence	*Actionline:*	Network to structure and integrate European research on marine biodiversity and ecosystems
Starting Date:	01/02/2004		
Duration (months):	60		
Project website:	http://www.marbef.org	*Keyword:*	Marine Environment / Fisheries / Biodiversity
DG responsible:	DG RTD		

Coordinator Mr Heip Carlo
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Knowledge on marine biodiversity in Europe is fragmented within and between disciplines. The approach to understanding the effects of increased anthropogenic pressure on marine biodiversity has hitherto been ad hoc and local. In particular, to understand how marine ecosystems will adapt to climate change, we need addressing especially the long-term and large-scale changes in marine biodiversity. This requires an entirely new research framework. The creation of the network of excellence MARBEF (Marine Biodiversity and Ecosystem Functioning) aims at integrating research efforts by forming a dedicated group of marine scientists and institutes and creating a virtual European institute with a long-term research programme and dedicated links with industry and the public at large. This involves besides coordination of research the training, exchange and outreach activities in several relevant fields of science, including marine ecology and biogeochemistry, fisheries biology, taxonomy and socioeconomic sciences. Better integration of research is also required to support the legal obligations of the EU and its Member States and associated states for the Convention for Biological Diversity, the OSPAR and Barcelona conventions as well as several EU directives (Bird Directive, Habitat Directive, Water Framework Directive). Society needs this information because a large and growing number of industries depend on the sustainable use and exploitation of marine biodiversity. This includes tourism, fisheries and aquaculture but also new industries that explore and commercialise marine genetic and chemical products.

Partners

• NEDERLANDS INSTITUUT VOOR ECOLOGIE	The Netherlands
• UNIVERSITY OF GOTEBORG	Sweden
• KLAIPEDA UNIVERSITY	Lithuania
• NATIONAAL NATUURHISTORISCH MUSEUM — NATURALIS	The Netherlands
• UNIVERSITEIT WAGENINGEN	The Netherlands
• HAVFORSKNINGSINSTITUTTET	Norway
• THE CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE	United Kingdom
• WAGENINGEN IMARES	The Netherlands
• RIJKINSTITUUT VOOR KUST EN ZEE	The Netherlands
• EXPERT CENTER FOR TAXONOMIC IDENTIFICATION	The Netherlands
• AKVAPLAN-NIVA	Norway
• CENTRO INTERDISCIPLINAR DE INVESTIGACAO MARINHA E AMBIENTAL	Portugal
• INSTITUT FUR MEERESKUNDE	Germany
• PLYMOUTH MARINE LABORATORY	United Kingdom
• VLAAMS INSTITUUT VOOR DE ZEE	Belgium
• FRITZ-HABER-INSTITUT DER MAX-PLANCK-GESELLSCHAFT	Germany
• INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	France
• INSTITUTE OF MARINE BIOLOGY OF CRETE	Greece
• INSTITUT FUR OSTSEEFORSCHUNG WARNEMUNDE	Germany
• ALFRED WEGENER INSTITUTE FOR POLAR AND MARINE RESEARCH	Germany
• MARINE BIOLOGICAL ASSOCIATION OF THE UK	United Kingdom
• NACIONALNI INSTITUT ZA BIOLOGIJO	Slovenia
• STICHTING KONINKLIJK NEDERLANDS INSTITUUT VOOR ONDERZOEK DER ZEE	The Netherlands
• INSTITUTE OF OCEANOLOGY OF THE POLISH ACADEMY OF SCIENCES	Poland
• SIR ALISTER HARDY FOUNDATION FOR OCEAN SCIENCE	United Kingdom
• STAZIONE ZOOLOGICA 'ANTON DOHRN'	Italy
• AMSTERDAM SCHOOL FOR SOCIAL SCIENCE RESEARCH/UNIVERSITEIT VAN AMSTERDAM	The Netherlands
• UNIVERSIDADE DOS ACORES	Portugal
• NATURAL HISTORY MUSEUM	United Kingdom
• AABO AKADEMI UNIVERSITY	Finland
• THE UNIVERSITY OF HULL	United Kingdom
• UNIVERSIDAD ISLAS BALEARES	Spain
• INSTITUTE OF BIOLOGY UNIVERSITY OF SOUTHERN DENMARK	Denmark
• DEPARTMENT OF ENDOCRINOLOGY AND METABOLISM, METABOLIC SECTION, UNIVERSITY OF PISA	Italy
• NATIONAL UNIVERSITY OF IRELAND	Ireland
• CONSORZIO NAZIONALE INTERUNIVERSITARIO PER LE SCIENZE DEL MARE	Italy
• SENCKENBERGISCHE NATURFORSCHENDE GESELLSCHAFT	Germany
• DANISH INSTITUTE FOR FISHERIES RESEARCH	Denmark
• ECOLOGICAL CONSULTANCY SERVICES LIMITED	Ireland
• GENT UNIVERSITY	Belgium
• THE UNIVERSITY COURT OF THE UNIVERSITY OF ST ANDREWS	United Kingdom
• RIJKS-UNIVERSITEIT GRONINGEN	The Netherlands
• CNR ISTITUTO DI PROCESSI CHIMICA-FISICA — SEZIONE DI MESSINA	Italy
• NATIONAL OCEANGRAPHIC CENTRE	United Kingdom
• DEPARTMENT OF BIOTECHNOLOGY, INTERCOLLEGIATE FACULTY OF BIOTECHNOLOGY, UNIVERSITY OF GDANSK AND MEDICAL UNIVERSITY OF GDANSK	Poland
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• DEPARTMENT OF MATHEMATICS, UNIVERSITY OF SOUTHAMPTON	United Kingdom
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• CARDIOVASCULAR RESEARCH INSTITUTE MAASTRICHT	The Netherlands
• CENTRE DE LA RECHERCHE SCIENTIFIQUE	France

MARINE GENOMICS: Implementation of high-throughput genomic approaches to investigate the functioning of marine ecosystems and the biology of marine organisms.

Call number:	FP6-2002-GLOBAL-1	*DG responsible:*	DG RTD
Contract number:	505403	*Total Project Cost:*	10.000.001,00
Contract type:	Network of Excellence	*EC Contribution:*	10.000.000,00
Starting Date:	01/03/2004	*Actionline:*	Developing genomics approaches
Duration (months):	48	*Keyword:*	Marine Environment / Fisheries / Biodiversity
Project website:	http://www.marine-genomics-europe.org		

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The overall aim of this project is to set up and develop a European Network of Excellence, referred to as 'Marine Genomics Europe', for the implementation of high-throughput genomic approaches in the biology of marine organisms. 'Marine Genomics Europe' will promote, develop, and spread throughout the European Union a broad range of genomic approaches, to investigate a wide range of questions related to the functioning of marine ecosystems and to the biology of marine organisms. With this aim in view, we propose to group and network experts in genomics, proteomics, and bioinformatics from several centres of excellence in genomics in Europe with marine biologists who can make use of high-throughput genomics data. This will involve the dedication and the development of common research infrastructures, both in genomics and in marine biology. Joining together these distinct scientific communities will establish Europe's lead in marine genomics. The J.E.R. of 'Marine Genomics Europe' is broken down into comparative, functional and environmental genomics, three sections which structure more traditional streamlines, leading to various microbial, algal, evolution development and diversity, and fish and shellfish nodes. This research can be applied to the management of marine resources (prediction of global changes in marine populations, conservation of biodiversity, fisheries management and improvement of aquacultured species) and to gene mining for health and biotechnology. The Integration effort of Marine Genomics Europe is based on the following strategies: (i) jointly develop enabling technologies; (ii) sharing existing technical platforms; (iii) collectively gaining access to major Genomic centres; (iv) regrouping under a common Bioinformatics Centre; and (v), create and develop a Knowledge and Communication System. Spreading activities will include workshops and courses implemented by a Training & Education Council.

Partners

• FIST S.A. — FRANCE INNOVATION SCIENTIFIQUE ET TRANSFERT	France
• UNIVERSITY OF GOTEBORG	Sweden
• HELLENIC CENTER FOR MARINE RESEARCH	Greece
• PARCO TECHNOLOGICO PADANO S.R.L.	Italy
• CENTER OF MARINE SCIENCES OF ALGARVE	Portugal
• PROKARIA	Iceland
• PLYMOUTH MARINE LABORATORY	United Kingdom
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• GESELLSCHAFT FUR BIOTECHNOLOGISCHE FORSCHUNG MBH	Germany
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• NORGES VETERINAERHOGSKOLE	Norway
• INSTITUTE OF OCEANOLOGY OF THE POLISH ACADEMY OF SCIENCES	Poland
• KUNGLIGA VETENSKAPSAKADEMIEN	Sweden
• STAZIONE ZOOLOGICA 'ANTON DOHRN'	Italy
• TECHNION — ISRAEL INSTITUTE OF TECHNOLOGY	Israel
• BANGOR UNIVERSITY	United Kingdom
• HUMBOLDT-UNIVERSITAT ZU BERLIN	Germany
• THE UNIVERSITY OF BIRMINGHAM	United Kingdom
• UNIVERSIDAD DE CONCEPCION	Chile
• INSTITUTE OF PLASMA PHYSICS, DEPARTMENT OF PHYSICS, UNIVERSITY OF CRETE	Greece
• UNIVERSITY OF WALES	United Kingdom
• THE UNIVERSITY OF HULL	United Kingdom
• DEPARTMENT OF CLINICAL MEDICINE, SECTION FOR NEUROLOGY, UNIVERSITY OF BERGEN	Norway
• THE UNIVERSITY OF NEWCASTLE	United Kingdom
• CHANCELLOR MASTERS AND SCHOLARS OF THE UNIVERSITY OF OXFORD	United Kingdom
• DEPT. OF GENERAL PSYCHOLOGY — UNIVERSITY OF PADOVA	Italy
• PONTIFICIA UNIVERSIDAD CATOLICA DE CHILE	Chile
• DANISH INSTITUTE FOR FISHERIES RESEARCH	Denmark
• EUROPAISCHES LABORATORIUM FUR MOLEKULARBIOLOGIE — EMBL	Germany
• RIJKS-UNIVERSITEIT GRONINGEN	The Netherlands
• CNR ISTITUTO DI PROCESSI CHIMICA-FISICA — SEZIONE DI MESSINA	Italy
• NATIONAL OCEANGRAPHIC CENTRE	United Kingdom
• ALBERT LUDWIGS UNIVERSITAT FREIBURG	Germany
• UNIVERSIDAD DE BARCELONA	Spain
• CARDIFF UNIVERSITY	United Kingdom
• CENTRO DE BIOLOGIA MOLECULAR SEVERO OCHOA, CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS	Spain
• THE UNIVERSITY OF WARWICK	United Kingdom
• BIELEFELD UNIVERSITY	Germany
• CENTRE DE LA RECHERCHE SCIENTIFIQUE	France
• INSITITUT DE RECERCA I TECHNOLOGICA AGROALIMENTARES	Spain
• CATHOLIC UNIVERSITY OF LEUVEN	Belgium

SEED: Life history transformations among HAB species, and the environmental and physiological factors that regulate them

Call number:	FP6-2003-Global-2	*DG responsible:*	DG RTD
Contract number:	003875	*Total Project Cost:*	2.006.215,00
Contract type:	Specific Targeted Research Project	*EC Contribution:*	1.499.994,00
Starting Date:	24/03/2005	*Actionline:*	Harmful algal blooms in European marine and brackish waters
Duration (months):	36		
Project website:	http://www.icm.csic.es/bio/projects/seed/	*Keyword:*	Marine Environment / HAB / Fisheries / Aquaculture

Coordinator Prof Martinez-A. Carlos
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The SEED project aims to understand how and to what extent anthropogenic forces influence the non-vegetative stages of the life cycles of harmful algal species thereby contributing to the increase in harmful algal blooms in European marine, brackish and fresh waters. The overall objectives are to improve and extend our understanding of the transition between the different life history stages to identify the environmental and physiological factors that regulate those transitions, and hence the relative importance of anthropogenic vs. natural causes, and to integrate the recent acquire knowledge in the development of new simulation model or refining existing ones. This will allow improved prediction, mitigation and management strategies. The approach of SEED is comparative, from species to ecosystem level. It is imperative to recognize common patterns of response among species to facilitate the development of conceptual and numerical models of HAB dynamics. SEED will focus on an array of target HAB species, ranging from marine to brackish to fresh water organisms, and covering a broad range of phylogenetic types. SEED research is multifaceted, as the problems in life history transitions are complex and processes occur over a wide range of scales. SEED will combine field studies and laboratory experiments. Field work is centred on areas where ongoing monitoring programs and much baseline information about distribution of species and physical-chemical data already exists. The innovation is to implement the most appropriate research strategies to be applied to the non-vegetative phases which determine the success of HABs and their expansion due to anthropogenic forcing. Moreover, a mitigation strategy, analogous to sterile insect releases that are an effective element of agricultural pest control on land will be investigated for the dormancy stages of HABs.

Partners

• CENTRO DE BIOLOGIA MOLECULAR SEVERO OCHOA, CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS	Spain
• FINNISH INSTITUTE OF MARINE RESEARCH	Finland
• INSTITUTO ESPANOL DE OCEANOGRAFIA	Spain
• STAZIONE ZOOLOGICA 'ANTON DOHRN'	Italy
• DEPARTMENT OF MEDICINE, LUND UNIVERSITY	Sweden
• UNIVERSITA DEGLI STUDI DI SASSARI	Italy
• NATIONAL UNIVERSITY OF IRELAND, GALWAY	Ireland
• ESTONIAN MARINE INSTITUTE, UNIVERSITY OF TARTU	Estonia
• UNIVERSITY OF WESTMINSTER	United Kingdom
• CNR ISTITUTO DI PROCESSI CHIMICA-FISICA — SEZIONE DI MESSINA	Italy
• HELSINGIN YLIOPISTO	Finland
• UNIVERSITA DEGLI STUDI DI URBINO 'CARLO BO'	Italy

SESAME: Southern European Seas: Assessing and Modelling Ecosystem Changes

Call number:	FP6-2005-Global-4	*Actionline:*	Assess and forecast changes in the Mediterranean and Black seas ecosystems and their ability to provide services (relevant projects in this topic still under negotiation as of Sept 2006)
Contract number:	036949		
Contract type:	Integrated Project		
Starting Date:	01/11/2006		
Duration (months):	48		
Project website:	http://www.sesame.wisc.edu/		
DG responsible:	DG RTD	*Keyword:*	Marine Environment / Fisheries / Ecosystem Functioning
Total Project Cost:	14.806.501,00		
EC Contribution:	9.999.121,00		

Coordinator Prof. Chronis George
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The general scientific objectives of SESAME are to assess and predict changes in the Mediterranean and Black Sea ecosystems as well as changes in the ability of these ecosystems to provide goods and services. The Mediterranean and Black Sea will be approached as a coupled climatic/ecosystem entity, with links and feedbacks to the world ocean. The assessment of ecosystem changes will be based on the identification of the major regime shifts in ecosystems that occurred during the last 50 years. Mathematical models validated and upgraded using existing and new observations will be used to predict ecosystem responses to changes in climate and anthropogenic forcing during the next five decades. The new data will be gathered during multidisciplinary, multiship oceanographic cruises in the Mediterranean and Black Sea. These will provide an overall picture of the Mediterranean and Black Sea that does not yet exist as well as essential data sets for model validation. SESAME will also study the effect of the ecosystem variability on key goods and services with high societal importance like tourism, fisheries, ecosystem stability though conservation of biodiversity and mitigation of climate change through carbon sequestration in water and sediments. The innovative character of SESAME is reflected in the close merging of economic and natural sciences to study the changes in the western and eastern Mediterranean and the Black Sea within the period from 50 years in the past to 50 years in the future. SESAME will create a platform for disseminating the research results to all levels of society. It will stimulate and strengthen international cooperation in the Mediterranean and Black Sea regions through the participation of research organisations from Member States, Associated States, Associated Candidate countries, non-EU Mediterranean and NIS countries as well as international organisations.

Partners

• HELLENIC CENTER FOR MARINE RESEARCH	Greece
• CENTRAL INSTITUTE FOR MARINE RESEARCH	Italy
• POLYTECHNICS UNIVERSITY OF MARCHE (UNIVERSITA POLITECNICA DELLE MACHE)	Italy
• SOUTHERN SCIENTIFIC CENTRE OF THE RUSSIAN ACADEMY OF SCIENCES	Russia
• INSTITUTE OF OCEANOGRAPHY AND FISHERIES	Croatia
• CYPRUS INTERNATIONAL INSTITUTE OF MANAGEMENT LIMITED	Cyprus
• SOPAB-BREST	France
• AGENCY FOR NEW TECHNOLOGY, ENERGY AND THE ENVIRONMENT	Italy
• INSTITUTO NAZIONALE DI GEOFISICA E VULCANOLOGIA	Italy
• BOGAZICI UNIVERSITES	Turkey
• CLU SRL	Italy
• FEEM SERVIZI S.R.L.	Italy
• A.O. KOVALEVSKIY INSTITUTE OF BIOLOGY OF SOUTHERN SEAS — UKRANIAN NATIONAL ACADEMY OF SCIENCES	Ukraine
• INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	France
• FONDAZIONE IMC CENTRO MARINO INTERNAZIONALE ONLUS	Italy
• INSTITUT NATIONAL DES SCIENCES ET TECHNOLOGIES DE LA MER	Tunisia
• ISRAEL OCEANOGRAPHIC AMP LIMNOLOGICAL RESEARCH	Israel
• MARINE HYDROPHYSICAL INSTITUTE	Ukraine
• NACIONALNI INSTITUT ZA BIOLOGIJO	Slovenia
• THE NATIONAL INSTITUTE OF OCEANOGRAPHY AND FISHERIES	Egypt
• ISTITUTO NAZIONALE DI OCEANOGRAFIA E DI GEOFISICA SPERIMENTALE	Italy
• P.P. SHIRSHOV INSTITUTE OF OCEANOLOGY OF THE RUSSIAN ACADEMY OF SCIENCES	Russia
• INSTITUTUL NATIONAL DE CERCETARE-DEZVOLTARE PENTRU GEOLOGIE SI GEOECOLOGIE MARINA	Romania
• INSTITUTE OF OCEANOLGY-BAS	Bulgaria
• INSTITUTUL NATIONAL DE CERCETARE — DEZVOLTARE MARINA	Romania
• STAZIONE ZOOLOGICA 'ANTON DOHRN'	Italy
• MIDDLE EAST TECHNICAL UNIVERSITY	Turkey
• PANEPISTIMIO AIGAIOU	Greece
• CENTRE FOR APPLIED GENSENSORIK AT THE UNIVERSITY OF BREMEN	Germany
• INSTITUTE OF PLASMA PHYSICS, DEPARTMENT OF PHYSICS, UNIVERSITY OF CRETE	Greece
• OCEANOGRAPHY CENTRE, UNIVERSITY OF CYPRUS	Cyprus
• UNIVERSIDAD DE HUELVA	Spain
• UNIVERSITE DU LITTORAL COTE D'OPALE	France
• LIEGE UNIVERSITY	Belgium
• L'UNIVERSITA'TA' MALTA — UNIVERSITY OF MALTA	Malta
• UNIVERSITY OF PLYMOUTH	United Kingdom
• NATIONAL COUNCIL FOR SCIENTIFIC RESEARCH	Lebanon
• SOFIA UNIVERSITY 'ST KLIMENT OHRIDSKI'	Bulgaria
• DEPARTMENT OF PHYSICS, TBILISI STATE UNIVERSITY	Georgia
• CONSORZIO NAZIONALE INTERUNIVERSITARIO PER LE SCIENZE DEL MARE	Italy
• CNR ISTITUTO DI PROCESSI CHIMICA-FISICA — SEZIONE DI MESSINA	Italy
• UNIVERSIDAD DE BARCELONA	Spain
• CENTRO DE BIOLOGIA MOLECULAR SEVERO OCHOA, CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS	Spain
• CARL VON OSSIETZKY UNIVERSITAT OLDENBURG	Germany
• ATHENS UNIVERSITY OF ECONOMICS AND BUSINESS RESEARCH CENTER	Greece
• CENTRE DE LA RECHERCHE SCIENTIFIQUE	France
• COMMISSION OF THE EUROPEAN COMMUNITIES — DG JOINT RESEARCH CENTRE	Belgium

SUSTDEV-3.5: Strategies for sustainable land management, including coastal zones, agricultural land and forests

List of projects

- SPICOSA

SPICOSA: Science and Policy Integration for COastal System Assessment

Call number:	FP6-2005-Global-4	*EC Contribution:*	10.000.000,00
Contract number:	036992	*Actionline:*	Sustainable Development and Integrated Coastal Zone Management (relevant projects in this topic still under negotiation as of Sept 2006)
Contract type:	Integrated Project		
Starting Date:	01/02/2007		
Duration (months):	48		
Project website:	http://www.spicosa.eu/simulation/index.htm	*Keyword:*	Marine Environment / Coastal Zone / Fisheries / Aquaculture
DG responsible:	DG RTD		
Total Project Cost:	14.580.200,00		

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The overall objective of SPICOSA is to develop a self-evolving, holistic research approach for integrated assessment of Coastal Systems so that the best available scientific knowledge can be mobilized to support deliberative and decision-making processes aimed at improving the sustainability of Coastal Systems by implementing Integrated Coastal Zone Management (ICZM) policies. Based on a system approach, a multidisciplinary assessment framework will be developed with a balanced consideration of the Ecological, Social and Economic sectors (ESE) of Coastal Systems. This System Approach Framework (SAF) will be used to explore the dynamics of Coastal-Zone Systems and potential consequences of alternative policy scenarios. Achieving this objective will require a restructuring of the science needed to understand the interactions between complex natural and social systems at different spatial and temporal scales including the overall economic evaluation of alternative policies. Furthermore, SPICOSA will contribute to a more integrated science-policy interface, i.e. specifically by developing and testing deliberation support tools for the transfer scientific products to policy decision-makers, stakeholders, and end-users. The SAF and its tools will be implemented in eighteen coastal Study Site Applications, which range from Norway to Portugal to Turkey and to Romania. A SAF Portfolio consisting of generic assessment methodologies, specific tools, models, and new knowledge useful for ICZM, will be produced in a manner that is user-friendly and updateable for future CZ researchers and professionals. In addition, SPICOSA will generate new curricula, training modules, and training opportunities for academics and professionals involved in Sustainability Science and ICZM implementation.

Partners

• INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	France
• MEGAPHARM GMBH	Denmark
• HAVFORSKNINGSINSTITUTTET	Norway

• HELLENIC CENTER FOR MARINE RESEARCH	Greece
• RIJKINSTITUUT VOOR KUST EN ZEE	The Netherlands
• INSTITUTE OF BIOLOGY UNIVERSITY OF SOUTHERN DENMARK	Denmark
• HOGSKOLEN I BODO	Norway
• VERENIGING VOOR CHRISTELIJK HOGER ONDERWIJS	The Netherlands
• CONSORZIO PER LA GESTIONE DEL CENTRO DI COORDINAMENTO DELLE ATTIVITA DI RICERCA INERENTI IL SYSTEMA LAGUNARE DI VENEZIA	Italy
• INSTITUTE OF AQUATIC ECOLOGY, UNIVERSITY OF LATVIA	Latvia
• CONSIGLIO NAZIONALE DELLE RICERCHE	Italy
• DISY INFORMATIONSSYSTEME GMBH	Germany
• CENTRO MEDITERRANEO DE ESTUDIOS PARA EL USO Y CONSERVACION DE LAS COSTAS — CENTRO MEDITERRANEO EUCC	Spain
• SOGREAH CONSULTANTS SAS	France
• ENVISION MANAGEMENT LTD	United Kingdom
• PCRASTER ENVIRONMENTAL SOFTWARE VOF	The Netherlands
• GROUPE D'ETUDE ET DE SERVICES POUR L'ECONOMIE DES RESSOURCES	France
• ENVECO MILJOEEKONOMI AB	Sweden
• CONSEJO SUPERIOR DE INVESTIGACIONES CIENTCFICAS	Spain
• INSTYTUT MORSKI W GDANSKU	Poland
• SAGREMARISCO-VIVEIROS DE MARISCO LDA	Portugal
• KOLLEG FUR MANAGEMENT UND GESTALTUNG NACHHALTIGER ENTWICKLUNG GGMBH	Germany
• DANUBE DELTA NATIONAL INSTITUTE FOR RESEARCH AND DEVELOPMENT	Romania
• INSTITUT FUR OSTSEEFORSCHUNG WARNEMUNDE	Germany
• *INSTITUT FUR OEKOLOGISCHE WIRTSCHAFTSFORSCHUNG GGMBH*	Germany
• MARINE HYDROPHYSICAL INSTITUTE	Ukraine
• MIDDLESEX UNIVERSITY	United Kingdom
• INSTITUTE OF OCEANOLGY-BAS	Bulgaria
• SCOTTISH ASSOCIATION FOR MARINE SCIENCE	United Kingdom
• STICHTING WATERLOOPKUNDIG LABORATORIUM	The Netherlands
• STAZIONE ZOOLOGICA 'ANTON DOHRN'	Italy
• SCIENTIFIC AND TECHNICAL RESEARCH COUNCIL OF TURKEY	Turkey
• PANEPISTIMIO AIGAIOU	Greece
• ALGARVE UNIVERSITY (UNIVERSIDADE DO ALGARVE)	Portugal
• UNIVERSITE BRETAGNE OCCIDENTALE	France
• CENTRE FOR APPLIED GENSENSORIK AT THE UNIVERSITY OF BREMEN	Germany
• UNIVERSITY OF EAST ANGLIA	United Kingdom
• HAIFA UNIVERSITY	Israel
• INSTITUTE FOR MEDICAL IMMUNOLOGY	Belgium
• UNIVERSITY OF PLYMOUTH	United Kingdom
• UNIVERSIDAD DE SEVILLA	Spain
• STOCKHOLMS UNIVERSITET	Sweden
• ESTONIAN MARINE INSTITUTE, UNIVERSITY OF TARTU	Estonia
• ARISTOTELEIO PANEPISTIMIO THESSALONIKIS — ARISTOTLE UNIVERSITY OF THESSALONIKI	Greece
• NORWEGIAN COLLEGE OF FISHERIES SCIENCE, UNIVERSITY OF TROMSO	Norway
• CEMAGREF, CENTRE NATIONAL DU MACHINISME AGRICOLE, DU GENIE RURAL, DES EAUX ET DES FORETS	France
• UNIVERSITE DE VERSAILLES SAINT QUENTIN EN YVELINES	France
• VLAAMSE INSTELLING VOOR TECHNOLOGISCH ONDERZOEK	Belgium
• NAPIER UNIVERSITY	United Kingdom
• NATIONAL UNIVERSITY OF IRELAND, CORK — UNIVERSITY COLLEGE CORK	Ireland
• DEPARTMENT OF BIOTECHNOLOGY, INTERCOLLEGIATE FACULTY OF BIOTECHNOLOGY, UNIVERSITY OF GDANSK AND MEDICAL UNIVERSITY OF GDANSK	Poland
• CARDIFF UNIVERSITY	United Kingdom
• AARHUS UNIVERSITET	Denmark
• COMMISSION OF THE EUROPEAN COMMUNITIES — DG JOINT RESEARCH CENTRE	Belgium

SUSTDEV-3.8: Cross-cutting issue: Sustainable Development concepts and tools

List of projects

- AQUAS
- THRESHOLDS

AQUAS: Water quality and sustainable aquaculture links and implications

Call number:	FP6-2004-Global-3	*Total Project Cost:*	150.000,00
Contract number:	015105	*EC Contribution:*	150.000,00
Contract type:	Specific Support Action	*Actionline:*	Developing tools for integrated sustainability assessment and for the incorporation of sustainability in decision-making processes
Starting Date:	01/01/2006		
Duration (months):	18		
Project website:	http://www.semide.net/initiatives/fol060732/proj836870	*Keyword:*	Aquaculture / Interaction with Environment
DG responsible:	DG RTD		

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In the last years there has been a steady growth in the development of aquaculture farms due to the increased demand of cultured species for consumption. One of the by-products of aquaculture is the creation of specific environmental problems related to intensive production and unsustainable farm expansion, leading to a boom and burst behaviour of aquaculture industries. Examples are the increasing occurrence of toxic red tides and the consequent incidence of diarrhetic and paralytic shellfish poisoning in southern European countries in the early nineties, or the permanent alteration of natural habitats in Latin America. Therefore, aquaculture and local water quality (WQ) are closely linked. The large inputs of nutrients and chemicals and the release of wastes into the environment may favour toxic algae blooms and induce bottom anoxia and eutrophication, especially where the carrying capacity of the receiving domain is limited (e.g., bays and semi-enclosed waterbodies). In turn, low aquaculture production rates may result from the appearance and spreading of diseases instigated by a poor water quality. This proposal will help to better 'structure' the understanding on the relationship between aquaculture and water quality, aiming towards the establishment of a set of aquaculture-related predictors for water quality. This is the soundest way to increase farm production and product quality in a sustainable manner, i.e. within the frame of a socially acceptable Integrated Coastal Zone Management (ICZM). This goal will be achieved by collecting and combining existing field observations with available numerical simulations, 'paving' the way for quantifying the relation between water quality and farm productivity. It will also allow the use of natural forcing mechanisms to increase or get the most out of the carrying capacity of the water body. The final results will be a starting point towards enhanced aquaculture production without compromising the 'health state' of the receiving domain for future generations.

Partners

- CENTRO INTERNACIONAL DE INVESTIGACION DE LOS RECURSOS COSTEROS — Spain

THRESHOLDS: Thresholds of Environmental Sustainability

Call number:	FP6-2003-Global-2	*DG responsible:*	DG RTD
Contract number:	3933	*Total Project Cost:*	7.875.237,00
Contract type:	Integrated Project	*EC Contribution:*	4.998.288,00
Starting Date:	01/01/2005	*Actionline:*	Thresholds of sustainability
Duration (months):	48.0	*Keyword:*	Marine Environment / Fisheries / Ecosystem Functioning
Project website:	http://www.thresholds-eu.org/public/Thresholds_brochure_web.pdf		

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THRESHOLDS seeks to contribute to the development of sustainability science and through the implementation of a procedure for policy formulation based on the development of a target setting process that integrates scientific knowledge on thresholds of indicators of environmental sustainability, the socioeconomic activities that impinge in these indicators and the components of their vulnerability, and the evaluation of the resulting externalities associated with these socioeconomic activities. THRESHOLDS carries out innovative cross-cutting research to develop, improve and integrate tools and methods to provide the basis to formulate sustainable strategies through research to deliver the scientific tools to identify thresholds and points of No-return of environmental sustainability and externality valuations required to define targets for the development of the European Sustainable Development Strategy. The THRESHOLDS Integrated Project (IP) will confront complex behaviour of ecosystems, such as regime shifts between alternative stable states, and complexity in valuation of the sectors affecting environmental quality, such as nonlinear cost-pressure relationships and multi-sectorial situations to develop procedures that accommodate to the complexity of the socioeconomic and environmental systems. The tools developed will be applied to case studies in the European coastal zone, where policy needs are pressing, involving increasing levels of complexity, from local to pan-European. THRESHOLDS will draw on the extensive data sets and research results produced on the basis of national efforts as well as previous framework programmes, which have focussed on major environmental problems and have delivered models and data which can be used to define Thresholds and Points of No Return. The THRESHOLDS IP, will, therefore, build on the European Research Area concept and add value to the applications of results derived from national and FP 6-funded research.

Partners

• CENTRO DE BIOLOGIA MOLECULAR SEVERO OCHOA, CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS	Spain
• INSTITUTE OF BIOLOGY UNIVERSITY OF SOUTHERN DENMARK	Denmark
• RINGKJOEBING COUNTY	Denmark
• TERRAQUAT	Germany
• FINNISH ENVIRONMENT INSTITUTE	Finland
• ASSOCIATION POUR LA RECHERCHE ET LA DEVELOPPEMENT DES METHODES ET PROCESSUS INDUSTRIELS	France
• INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	France
• DANMARKS MILJOEUNDERSOEGELSER	Denmark
• INSTITUTE OF OCEANOLGY-BAS	Bulgaria
• THE UNIVERSITY OF BATH	United Kingdom
• UNIVERSIDAD ISLAS BALEARES	Spain
• INSTITUTE FOR MEDICAL IMMUNOLOGY	Belgium
• INSTITUT DE MATHEMATIQUES DE JUSSIEU	France
• FACHHOCHSCHULE STUTTGART — HOCHSCHULE FUR TECHNIK	Germany
• ESTONIAN MARINE INSTITUTE, UNIVERSITY OF TARTU	Estonia
• SWEDISH COLLEGIUM FOR ADVANCED STUDY IN THE SOCIAL SCIENCES — UPPSALA UNIVERSITET	Sweden
• CENTRALE RECHERCHE S.A.	France
• THE UNIVERSITY OF OSLO	Norway
• HOEGSKOLAN I KALMAR.	Sweden
• COMMISSION OF THE EUROPEAN COMMUNITIES — DG JOINT RESEARCH CENTRE	Belgium
• ISTITUTO DI STUDI PER L'INTEGRAZIONE DEI SYSTEMI	Italy
• NORSK INSTITUTT FOR VANNFORSKNING	Norway

Specific Activities Covering a Wider Field of Research

Research for policy support

Specific international cooperation activities

Specific research activities for SMEs

Research for policy support

- **POLICIES-1**

Cod (*Gadus morhua*)
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POLICIES-1: Sustainable management of Europe's natural resources

POLICIES-1.3

POLICIES-1.4

POLICIES-1.3: The modernisation and sustainability of fisheries policies

List of projects

- AFISA
- AFRAME
- AQUABREEDING
- AQUAFIRST
- AQUAFUNC
- AQUAGENOME
- BECAUSE
- BENEFISH
- CAFE
- CEDER
- CEVIS
- COBECOS
- COMMIT
- DEGREE
- DIPNET
- ECASA
- EFIMAS
- EMPAFISH
- ENVIEFH
- EUROCARP
- FASTFISH
- FEUFAR
- FINE
- FISBOAT
- GENIMPACT
- IBEFISH
- ICES-FISHMAP
- IMAGE
- IMPACT FISH
- IMPASSE
- IN EX FISH
- INDECO
- ISTAM
- NECESSITY
- OATP
- POORFISH
- PROFET POLICY
- PRONE
- PROTECT
- RECLAIM
- REPROFISH
- SAMI
- SARDONE
- SEACASE
- SHEEL
- SLIME
- UNCOVER
- WEALTH

AFISA: Automated fish ageing

Call number:	FP6-2005-SSP-5A	*DG responsible:*	DG MARE
Contract number:	044132	*Total Project Cost:*	1.254.737,00
Contract type:	Specific Targeted Research Project	*EC Contribution:*	604.283,00
Starting Date:	01/04/2007	*Actionline:*	The modernisation and sustainability of fisheries policies
Duration (months):	24		
Project website:	http://www.ifremer.fr/lasaa/Afisa/accueil_afisa.htm	*Keyword:*	Fisheries / Fish Biology

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Most of European fish stocks are assessed using age-based models, and the cost of the acquisition of age data from otolith readings raises several million euros annually. Low uncertainty in age estimation is however reached for only 25 % of fish stocks under ICES advising process. The impact of ageing errors on stock assessment is obvious though obscure. In this context, automated ageing systems would provide a mean to standardize ageing among laboratories and to control ageing consistency while reducing the cost of the acquisition of age data. No such system is currently available, although preliminary results provide the basis for such developments.

This two-year project aims at developing fully automated and robust systems for routine ageing. It will comprise four workpackages in addition to project management (WP0): the collation of the otolith material and the creation of bases of annotated otolith images (WP1), the development of algorithms for fish ageing automation from otolith features (WP2), the implementation these automated ageing modules in a software platform dedicated to otolith imaging (WP3), the cost-benefit analysis of the proposed automated ageing systems (WP4).

The whole processing chain from the acquisition of otolith data to the actual ageing issue using pattern recognition or statistical inference will be coped with. The demonstration component will include the demonstration of the degree of automation of the proposed systems and a cost-benefit analysis of these automated solutions for three case studies: cod from Faeroes, North Sea and North East Artic, plaice from the Eastern English Channel (VIId) and Iceland, and anchovy from the Bay of Biscay. The focus will be on demonstrating the consistency of automated age estimation with respect to the major steps of the processing chain and to the joint analysis of ageing precision and acquisition costs with respect to stock assessment objectives.

Partners

• INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	France
• HAVFORSKNINGSINSTITUTTET	Norway
• DANISH INSTITUTE FOR FISHERIES RESEARCH	Denmark
• THE CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE	United Kingdom
• HAFRANNSOKNASTOFNUNIN	Iceland
• AZTI FUNDAZIOA	Spain
• TECHNICAL UNIVERSITY OF CATALONIA (UNIVERSITAT POLITECNICA DE CATALUNYA)	Spain

AFRAME: A framework for fleet and area based fisheries management

Call number:	FP6-2005-SSP-5A	*DG responsible:*	DG MARE
Contract number:	044168	*Total Project Cost:*	2.327.018,00
Contract type:	Specific Targeted Research Project	*EC Contribution:*	1.315.285,00
Starting Date:	01/04/2007	*Actionline:*	The modernisation and sustainability of fisheries policies
Duration (months):	24		
Project website:	http://www.azti.es/aframe	*Keyword:*	Fisheries / Management

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The chief objective of AFRAME is to develop a framework for fleet and area-based fisheries management. The project has three research themes: 1, the development and testing of a framework for describing fleet activity in terms of the fisheries in which the fleet participates, and how it allocates its effort across these fisheries; 2, the development of indicator approaches to summarising information and presenting advice in relation to multi-fleet, multi-species fisheries; and 3, stakeholder perceptions and institutional implications of a shift to fleet and area based management. These themes will be developed through application in three contrasting case study areas: 1, the demersal fisheries of the North Sea, which represent a relatively data-rich area with relatively few important commercial species, all of which are assessed routinely; 2, the demersal fisheries of ICES areas VII and VIII (the Channel, Celtic Sea and the Bay of Biscay), which has a relatively high number of target species, not all of which are assessed; and 3, the Mediterranean, which has a high number of target species, with very little stock assessment information.

Partners

• AZTI FUNDAZIOA	Spain
• HAVFORSKNINGSINSTITUTTET	Norway
• FISHERIES RESEARCH SERVICE	United Kingdom
• DANISH INSTITUTE FOR FISHERIES RESEARCH	Denmark
• *DEN KONGELIGE VETERINAER- OG LANDBOHOEJSKOLE*	Denmark
• HELLENIC CENTER FOR MARINE RESEARCH	Greece
• WAGENINGEN IMARES	The Netherlands
• INSTITUTE FOR FISHERIES MANAGEMENT AND COASTAL COMMUNITY DEVELOPMENT	Denmark
• THE CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE	United Kingdom
• INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	France

AQUABREEDING: Towards enhanced and sustainable use of genetics and breeding in the European aquaculture industry

Call number:	FP6-2005-SSP-5A	*DG responsible:*	DG MARE
Contract number:	044424	*Total Project Cost:*	236.614,00
Contract type:	Specific Support Action	*EC Contribution:*	236.614,00
Starting Date:	01/12/2006	*Actionline:*	The modernisation and sustainability of fisheries policies
Duration (months):	24		
Project website:	http://www.aquabreeding.eu	*Keyword:*	Aquaculture / Genetics & Breeding

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The European aquaculture industry is a dynamic production sector characterized by a large variety of cultivated species and various rearing environments. The industry, although heterogeneous in size and type, is willing to collaborate with research organisations to tackle the problems inherent to any young production system but also to invest in strategic areas. Genetic improvement represents a crucial area for any industry whose activities depend on the trade of improved 'seeds' in both the plant and animal production sectors. When we consider the commitments made by the aquaculture sector in the area of genetic improvement, the industry can be divided into two halves. On one side pioneering companies have developed sophisticated selection programs and are now investing in the application of new technologies to their breeding systems. On the other side are the small producers which have either set up sporadic breeding activities or have not invested at all in breeding and are still using unselected broodstock. The project tackles this imbalance through the following objectives:

1) definition of the research priorities of the industry already involved in aquaculture breeding,

2) promotion of knowledge dissemination to support a major involvement of the entire industry in breeding activities,

3) creation of the conditions for a progressive integration of the European aquaculture industry into the FABRE Technology Platform.

The output of this project will consist of the definition of a strategic research agenda for the aquaculture sector in relation to breeding techniques and the provision of a vision paper defining the needs of the industry within the remit of the Technology Platform on Animal Breeding. The project also intends to increase the awareness within the entire industry of the benefits of implementing breeding activities and the use of genomic tools in the production of aquaculture species and by doing this assist in addressing the imbalance described above.

Partners

• ISTITUTO SPERIMENTALE ITALIANO 'LAZZARO SPALLANZANI'	Italy
• AKVAFORSK (INSTITUTE OF AQUACULTURE RESEARCH AS)	Norway
• SYNDICAT DES SELECTIONNEURS AVICOLES ET AQUACOLES FRANCAIS	France
• COMHLUCHT IASC FANAD TEO, T/A MARINE HARVEST IRELAND	Ireland
• INSTITUT NATIONAL DE LA RECHERCHE AGRONOMIQUE	France

AQUAFIRST: Combined genetic and functional genomic approaches for stress and disease resistance marker assisted selection in fish and shellfish

Call number:	FP6-2003-SSP-3	*DG responsible:*	DG MARE
Contract number:	513692	*Total Project Cost:*	5.821.320,00
Contract type:	Specific Targeted Research Project	*EC Contribution:*	3.799.954,00
Starting Date:	01/11/2004	*Actionline:*	The modernisation and sustainability of fisheries policies
Duration (months):	42		
Project website:	http://aquafirst.vitamib.com	*Keyword:*	Aquaculture / Genetics & Breeding

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The overall aim of this project is to identify genes associated with stress and disease resistance in oyster, trout, sea bream, and sea bass in order to provide a physiological and genetic basis for marker-assisted selection. These studies will be carried out for fish using stress and pathogen challenges directly relevant to aquaculture and for oyster using environmental conditions that are known to lead to significant summer mortalities.

Part 1: the genes involved in the functional response to stress or pathogen exposure will be identified. This will be carried out in the four species by: (i) constructing relevant EST collections using SSH cDNA libraries which will be spotted on microarrays, followed by (ii) analysis of gene expression profiles in various tissues of animals exposed to stressors or pathogens. This analysis will be also carried out in families that are divergent for stress response or disease resistance (fish) or for summer survival (oyster).

Part 2: in order to investigate relationship between potential candidate genes and QTL for these traits, this part of the project will identify Single Nucleotide Polymorphisms (SNP) in these candidate genes in oyster and trout. This polymorphism will be analysed both in the EST sequences and in the promoter region of these genes.

Part 3: QTL analysis will be used to identify genes that are associated with stress specific traits and disease resistance traits using previously characterized SNP and also microsatellites markers. We will also carry out mapping of these genes in linkage and gene maps.

Part 4 is devoted to outline operational genetic protocols incorporating identified QTL and traditional breeding approaches in oyster, sea bream and sea bass.

This knowledge will be transferred to the industry through organisation of workshops gathering scientists and RTD performers.

Partners

• INSTITUT NATIONAL DE LA RECHERCHE AGRONOMIQUE	France
• UNIVERSITEIT WAGENINGEN	The Netherlands
• HELLENIC CENTER FOR MARINE RESEARCH	Greece
• CENTER OF MARINE SCIENCES OF ALGARVE	Portugal
• NIREUS CHIOS AQUACULTURE SA	Greece
• CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE DiLiGATION RiGION BRETAGNE ET PAYS DE LA LOIRE	France
• INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	France
• DEPT. OF GENERAL PSYCHOLOGY — UNIVERSITY OF PADOVA	Italy
• ROSLIN INSTITUTE (EDINBURGH)	United Kingdom
• NATIONAL UNIVERSITY OF IRELAND, GALWAY	Ireland
• INSTITUTO CANARIO DE CIENCIAS MARINAS	Spain
• SWEDISH COLLEGIUM FOR ADVANCED STUDY IN THE SOCIAL SCIENCES — UPPSALA UNIVERSITET	Sweden
• THE UNIVERSITY COURT OF THE UNIVERSITY OF ABERDEEN	United Kingdom
• NATIONAL OCEANGRAPHIC CENTRE	United Kingdom
• CENTRO DE BIOLOGIA MOLECULAR SEVERO OCHOA, CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS	Spain
• CATHOLIC UNIVERSITY OF LEUVEN	Belgium
• PLYMOUTH MARINE LABORATORY	United Kingdom

AQUAFUNC: Integrated knowledge on functional genomics in sustainable aquaculture

Call number:	FP6-2004-SSP-4	*Total Project Cost:*	177.469,00
Contract number:	22685	*EC Contribution:*	177.120,00
Contract type:	Specific Support Action	*Actionline:*	The modernisation and sustainability of fisheries policies
Starting Date:	01/11/2005		
Duration (months):	24	*Keyword:*	Aquaculture / Genetics & Breeding / Dissemination — Synthesis — Prospective
Project website:	http://genomics.aquaculture-europe.org/		
DG responsible:	DG MARE		

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A number of projects, using molecular technologies and a functional genomics approach to improve sustainability of European aquaculture, have been funded within the EU 5th and 6th frame work program. An integration of the outcome of these projects would undoubtedly contribute to build a large common knowledge base in this area. A synthesis of the different data sets can be expected to have a leverage effect, creating a more significant output than the sum of the individual projects. Integration and communication of the different projects outcome would also reduce possible overlap both currently and in the future. Bringing together a large number of research groups/projects in a common forum should generate a critical mass and improve European and International visibility in this important area of production. The overall aim of the present project is to integrate the outcome of the projects within Framework Program 5 and 6 that concern genome mapping and functional genomics in aquaculture, in order to generate a common scientific basis of a functional genomics approach to aquaculture. This will be achieved through a series of instruments including work group meetings, analyse and combining of results in joint scientific publications as well as the creation of a common Internet site containing both public and restricted, accessible for registered scientific members, areas.

Partners

• UNIVERSITY OF GOTEBORG	Sweden
• CENTER OF MARINE SCIENCES OF ALGARVE	Portugal
• INSTITUT NATIONAL DE LA RECHERCHE AGRONOMIQUE	France
• CENTRO DE BIOLOGIA MOLECULAR SEVERO OCHOA, CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS	Spain

AQUAGENOME: Genomic in fish and shellfish: From research to aquaculture

Call number:	FP6-2005-SSP-5A	*DG responsible:*	DG MARE
Contract number:	044481	*Total Project Cost:*	893.305,00
Contract type:	Coordination action	*EC Contribution:*	794.040,00
Starting Date:	01/01/2007	*Actionline:*	The modernisation and sustainability of fisheries policies
Duration (months):	24		
Project website:	http://genomics.aquaculture-europe.org/	*Keyword:*	Aquaculture / Genetics & Breeding

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In recent years, a relatively large number of projects investigating the biology of aquaculture species through genomic approaches have been funded both at European and national levels. They have generated an extensive core of genomic tools and expertise that is spread among European research laboratories. However, this scientific resource is not coordinated within research networks and transfer to the European aquaculture industry is still in its infancy. In this context, the objectives of AQUAGENOME are:

1) coordination of the ongoing and future national and international research projects in the field of genomics in fish and shellfish European aquaculture and support diffusion of genomic approaches within research laboratories;

2) enhancement of the transfer of information and knowledge towards the aquaculture industry.

In order to reach these objectives, the aims of this project will be: (i) to inventory existing genomic resources and identify and evaluate new bioinformatic resources, genomic information and tools that are vital for the development of European aquaculture; (ii) to identify specific research domains in which genomic approaches should be developed in order to support the European aquaculture industry; (iii) to support exchanges of scientists and genomic resources between members of the AQUAGENOME Associated Partner Network created; (iv) to determine the required actions to apply genomic tools and knowledge in an effective and sustainable manner in aquaculture, by interacting with producers and stakeholders.

These achievements will require the use of a number of instruments, e.g. working groups to gather experts in specific domains, organisation of workshops where aquaculture industry will meet research and construct a roadmap for transfer of knowledge in genomics and genomic technologies to industry, creation of a website to share information and provide links,

development of a database and software to broaden access to genomic resources and the distribution of grants to support exchanges.

Partners

• INSTITUT NATIONAL DE LA RECHERCHE AGRONOMIQUE	France
• UNIVERSITY OF GOTEBORG	Sweden
• HAVFORSKNINGSINSTITUTTET	Norway
• HELLENIC CENTER FOR MARINE RESEARCH	Greece
• CENTER OF MARINE SCIENCES OF ALGARVE	Portugal
• RUSSIAN FEDERAL RESEARCH INSTITUTE FOR FISHERIES AND OCEANOGRAPHY	Russia
• SYNDICAT DES SELECTIONNEURS AVICOLES ET AQUACOLES FRANCAIS	France
• FARM ANIMAL GENETICS AND GENOMICS FARADAY PARTNERSHIP	United Kingdom
• THE UNIVERSITY OF STIRLING	United Kingdom
• CENTRO DE BIOLOGIA MOLECULAR SEVERO OCHOA, CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS	Spain

BECAUSE: Critical Interactions BEtween Species and their Implications for a PreCAUtionary FISheries Management in a variable Environment- a Modelling Approach

Call number:	FP6-2002-SSP-1	*DG responsible:*	DG MARE
Contract number:	502482	*Total Project Cost:*	4.846.691,00
Contract type:	Specific Targeted Research Project	*EC Contribution:*	2.965.725,00
Starting Date:	01/03/2004	*Actionline:*	The modernisation and sustainability of fisheries policies
Duration (months):	36		
Project website:	http://www1.uni-hamburg.de/BECAUSE	*Keyword:*	Fisheries / Interaction with Environment

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BECAUSE investigates the quantitative role of species interactions as a first step towards the implementation of the ecosystem approach into fisheries management. The focus is on simple but critical interactions in the upper trophic levels of marine food webs. This refers specifically to the interactions between exploited prey fish populations, exploited fish predators and wild life such as sea birds and marine mammals dependent on the same prey fish populations. In most European shelf ecosystems fish predator populations are severely depleted, and this has released predation pressure on prey fish populations substantially. In part, man has taken over the role and harvests this part of the prey fish production either for human consumption or for reduction to fish meal. An exact quantitative understanding of these interactions becomes essential, once recovery plans for the over fished predator stocks become operational and effective. The interactions targeted for investigation are sandeel/predator fish, nephrops/cod, capelin/cod herring/cod, sprat/cod, hake/prey fish, hake and cod cannibalism. These interactions will be studied in 5 different case studies: Nordic Seas, North Sea, Baltic Sea, Iberian Shelf/Bay of Biscay and Mediterranean Sea. The analysis will start with the development of conceptual food web models in each case study. This will include the detailed analysis of processes driving critical interactions, mainly prey selection, predator prey overlap and its dependence on biological and hydrographical factors, consumption, growth and maturity. Special emphasis will be given on updates of the population numbers of dependent wild life and revisions of their feeding behaviour and food requirements. The process analysis results in improved process models which are in turn used to improve existing multi species models.

Partners

• CENTER FOR MOLECULAR NEUROBIOLOGY, HAMBURG UNIVERSITY	Germany
• HAVFORSKNINGSINSTITUTTET	Norway
• THE CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE	United Kingdom
• FISHERIES RESEARCH SERVICE	United Kingdom
• DANISH INSTITUTE FOR FISHERIES RESEARCH	Denmark
• LATVIAN FISHERIES RESEARCH INSTITUTE	Latvia
• INSTITUTE OF MARINE RESEARCH, NATIONAL BOARD OF FISHERIES	Sweden
• INSTITUT FUR MEERESKUNDE	Germany
• FINNISH GAME AND FISHERIES RESEARCH INSTITUTE (RIISTA- JA KALATALOUDEN TUTKIMUSLAITOS)	Finland
• INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	France
• HAFRANNSOKNASTOFNUNIN	Iceland
• MORSKI INSTYTUT RYBACKI	Poland
• CIRPS (INTERUNIVERSITY RESEARCH CENTRE FOR SUSTAINABLE DEVELOPMENT)-UNIVERSITY OF ROME 'LA SAPIENZA'	Italy
• AZTI FUNDAZIOA	Spain
• THE UNIVERSITY COURT OF THE UNIVERSITY OF ST ANDREWS	United Kingdom
• CENTRO DE BIOLOGIA MOLECULAR SEVERO OCHOA, CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS	Spain
• NATIONAL CENTRE FOR MARINE RESEARCH	Greece

BENEFISH: Evaluation and Modelling of Benefits and Costs of Fish Welfare Interventions in European Aquaculture

Call number:	FP6-2005-SSP-5A	*DG responsible:*	DG MARE
Contract number:	044118	*Total Project Cost:*	2.139.378,00
Contract type:	Specific Targeted Research Project	*EC Contribution:*	1.259.988,00
Starting Date:	01/02/2007	*Actionline:*	The modernisation and sustainability of fisheries policies
Duration (months):	36		
Project website:	http://www.benefish.eu	*Keyword:*	Aquaculture / Welfare

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The welfare of fish bred and raised in captivity is a subject for serious consideration, resulting in increasing pressure on the regulatory authorities to legislate on fish welfare. Legislation and regulation pertaining to farmed fish welfare requires a detailed understanding of not only the relevant biology and ethical issues, but also of practical matters regarding welfare assessment and monitoring (e.g. operational welfare indicators) and the economic implications of their implementation. This latter area is the focus of the BENEFISH research program. BENEFISH explores the benefits and costs of welfare measures in aquaculture production systems, having defined a widely-applicable set of operational welfare actions and indicators that can be connected to measurable consequences in production and extended to effects on value chain and changes in consumer perception. BENEFISH produces a scientific basis for comparing the biological effects and monetary influences of various welfare measures through development of a high-level decision analysis model. The main objectives of BENEFISH are:

1) use a set of widely applicable operational welfare indicators, define relationships between selected welfare control measures and their consequences for production, quality and consumer perception;

2) estimate the costs and benefits of potential welfare control measures and their documentation through case studies;

3) develop a decision analysis model allowing comparison between various welfare control measures on the basis of their biological and monetary consequences.

These objectives are achieved by mining existing data resources, supplementary collection of data from representative farming systems and construction of production and bio-economic models. BENEFISH looks for strategies that provide producers and all others in the market chain an economic incentive to improve fish welfare. This has the potential to not only provide producers with a real economic incentive to improve fish welfare but may also

give the European aquaculture industry an advantage in the world market through more efficient production methods and higher value of ethically produced fish products.

Partners

• TRANSNATIONAL CONSULTING PARTNERSHIP EWIV	Germany
• AGROTECHNOLOGY AND FOOD INNOVATIONS	The Netherlands
• WAGENINGEN IMARES	The Netherlands
• FINNISH GAME AND FISHERIES RESEARCH INSTITUTE (RIISTA- JA KALATALOUDEN TUTKIMUSLAITOS)	Finland
• INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	France
• FISKERIFORSKNING	Norway
• GLASGOW CALEDONIAN UNIVERSITY	United Kingdom
• THE UNIVERSITY OF STIRLING	United Kingdom
• AGROTECHNOLOGY AND FOOD INNOVATIONS B.V	The Netherlands

CAFE: Capacity, F and Effort

Call number:	FP6-2004-SSP-4	*DG responsible:*	DG MARE
Contract number:	22644	*Total Project Cost:*	3.221.890,00
Contract type:	Specific Targeted Research Project	*EC Contribution:*	1.800.000,00
Starting Date:	01/02/2006	*Actionline:*	The modernisation and sustainability of fisheries policies
Duration (months):	36		
Project website:	http://cafe.jrc.ec.europa.eu	*Keyword:*	Fisheries / Management

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Capacity reduction and effort limitation are major tools in fisheries management. CFP reform aims to match European fleet capacity to resource availability. Links are assumed between these and fishing mortality, but the scientific basis for these has not been fully established, particularly for pelagic fisheries.

The project will examine the relationship between these factors for six case studies; North Sea, Biscay / East Mediterranean pelagic fisheries; and North Sea, western (Biscay / Celtic Sea) and north east Mediterranean demersal fisheries. It will review existing approaches to measuring capacity and effort and control measures derived from these. It will collate data on fleets (catch, vessel / gear metrics, costs & profits, and investment / capital values) and on fish stocks (abundance, distribution, fishing mortality). It will include analyses of fisher's behaviour from targeted fine scale studies.

Statistical and mathematical modelling tools will be used to explore and quantify relationships between metrics for the three factors. Metrics will be selected that are suitable for capacity and effort and have good explanatory power in the model systems. Appropriate models and metrics will be developed to quantify the links between capacity, effort and species mortality, partitioned by fleet and area. A key element will be a study of capacity utilisation, i.e. the match between capacity and real effort, including a quantitative study of the factors controlling capacity change, i.e. investment strategy, control legislation and economic factors.

Finally, the project will propose a series of new effort and capacity control measures and scenarios. These will be tested and compared to current measures using operational models. At all stages explicit measures will be taken to quantify structural and parametric uncertainty. The final outcome will be a comprehensive review of possible management measures and their likely effect in conserving fish stock resources.

Partners

• IMPERIAL COLLEGE FOR SCIENCE, TECHNOLOGY AND MEDICINE	United Kingdom
• FISHERIES RESEARCH SERVICE	United Kingdom
• DANISH INSTITUTE FOR FISHERIES RESEARCH	Denmark
• WAGENINGEN IMARES	The Netherlands
• HELLENIC CENTER FOR MARINE RESEARCH	Greece
• THE CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE	United Kingdom
• DANISH RESEARCH INSTITUTE OF FOOD ECONOMICS	Denmark
• ASSOCIATION POUR LA RECHERCHE ET LA DEVELOPPEMENT DES METHODES ET PROCESSUS INDUSTRIELS	France
• INSTITUTO ESPANOL DE OCEANOGRAFIA	Spain
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• UNIVERSITY OF PORTSMOUTH	United Kingdom
• FOUNDATION FOR RESEARCH IN ECONOMICS AND BUSINESS ADMINISTRATION	Norway
• AZTI FUNDAZIOA	Spain
• INSTITUT DE RECHERCHE POUR LE DEVELOPPEMENT	France
• COMMISSION OF THE EUROPEAN COMMUNITIES — DG JOINT RESEARCH CENTRE	Belgium

CEDER: Catch, Effort and Discard Estimates in Real-time

Call number:	FP6-2004-SSP-4	*DG responsible:*	DG MARE
Contract number:	22615	*Total Project Cost:*	2.418.291,00
Contract type:	Specific Targeted Research Project	*EC Contribution:*	1.300.000,00
Starting Date:	01/01/2006	*Actionline:*	The modernisation and sustainability of fisheries policies
Duration (months):	24		
Project website:	https://ceder.jrc.ec.europa.eu/home	*Keyword:*	Fisheries / Control & Enforcement

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Uncertainties in human activities contribute significantly to the overall uncertainty in the assessment of stocks and in the estimated impact of management advice. However the current widespread deployment of modern technologies such as the Vessel Monitoring System (VMS) and electronic logbooks to record and communicate fishing activities have the potential not only to improve the accuracy of such data but also increase its spatial precision and to reduce the time it takes to arrive at the desktops of fisheries stakeholders, ship owners, producer organizations, authorities, scientists — thus opening up a new set of possibilities for a more responsive fisheries management.

It is the primary objective of this project to harness these technologies to provide more accurate and more timely information on catches, effort, landings, discards and quota and TAC uptake and to assess the benefits of this information for fisheries management. The project will proceed in three phases.

In the first analysis phase all available data from the fishery from traditional sources such as observers and landing notes as well as from new sources such as VMS will be collected and analysed in order to determine relationships between the different measurements VMS and declared effort or landings and log-book entries for instance and to convert these measurements into the information required by the stakeholders.

The second testing phase will involve carrying a series of pilot studies under real conditions to show the feasibility of obtaining real-time information on fisheries, to identify bottlenecks and to measure the performance of the technology used in terms of accuracy of information, timeliness and cost.

The third implementation phase involves determining how the system could be moved from pilot scale to full-scale EU implementation and identifying the benefits for stakeholders in doing so.

Partners

• AVANTI COMMUNICATIONS LIMITED	United Kingdom
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• NORTH EAST ATLANTIC FISHERIES COMMISSION	United Kingdom
• NAVIGS S.A.R.L	France
• GREENLAND FISHERIES LICENCE CONTROL AUTHORITY	Greenland
• OLRAC UK LTD	United Kingdom
• TIETOENATOR	Denmark
• TRACEALL LIMITED	United Kingdom
• GREENLAND INSTITUTE OF NATURAL RESOURCES	Greenland
• THE CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE	United Kingdom
• INSTITUTO ESPANOL DE OCEANOGRAFIA	Spain
• INSTITUT DE RECHERCHE POUR LE DEVELOPPEMENT	France
• COMMISSION OF THE EUROPEAN COMMUNITIES — DG JOINT RESEARCH CENTRE	Belgium

CEVIS: Comparative Evaluations of Innovative Solutions in European fisheries management

Call number:	FP6-2004-SSP-4	*DG responsible:*	DG MARE
Contract number:	22686	*Total Project Cost:*	1.868.311,00
Contract type:	Specific Targeted Research Project	*EC Contribution:*	1.199.383,00
Starting Date:	01/11/2005	*Actionline:*	The modernisation and sustainability of fisheries policies
Duration (months):	36		
Project website:	http://www.ifm.dk/cevis/	*Keyword:*	Fisheries / Management

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CEVIS assesses potential innovations for European fisheries management regimes in respect to four general management objectives: biological robustness; economic efficiency; the cost effectiveness of management activities; and social robustness. CEVIS examines four types of regime-level innovations: the use of participatory approaches to fisheries governance; rights-based regimes; effort-control regimes and decision-rule systems. The central research objectives of CEVIS are expressed by four disciplinary, cross-case work packages that focus on the implications of these types of innovations for the general management objectives in four case studies in the EU and the Faroe Islands. Before these case studies begin the research will take a close look at cases of innovative fisheries management in other developed countries. Visits will be made to four places outside the EU that have similar fisheries and have implemented these four types of innovations. CEVIS has two final products. The first is an Innovation Evaluation Framework made up of indicators of inputs and outcomes in relation to the four general management objectives. This will be an aid to fisheries managers wishing to assess the suitability of possible changes in EU fisheries management practice. The second is a report based on the case studies that evaluates this specific set of potential regime-level innovations for use in EU fisheries management.

Partners

• INSTITUTE FOR FISHERIES MANAGEMENT AND COASTAL COMMUNITY DEVELOPMENT	Denmark
• HAVFORSKNINGSINSTITUTTET	Norway
• FISHERIES RESEARCH SERVICE	United Kingdom
• DANISH INSTITUTE FOR FISHERIES RESEARCH	Denmark
• WAGENINGEN IMARES	The Netherlands
• OEKO-INSTITUT E.V.	Germany
• DANISH RESEARCH INSTITUTE OF FOOD ECONOMICS	Denmark
• MORSKI INSTYTUT RYBACKI	Poland
• NORWEGIAN COLLEGE OF FISHERIES SCIENCE, UNIVERSITY OF TROMSO	Norway
• AZTI FUNDAZIOA	Spain
• LULEAA TEKNISKA UNIVERSITET	Sweden
• COMMISSION OF THE EUROPEAN COMMUNITIES — DG JOINT RESEARCH CENTRE	Belgium

COBECOS: Cost and Benefit of Control Strategies

Call number:	FP6-2005-SSP-5A	*DG responsible:*	DG MARE
Contract number:	044153	*Total Project Cost:*	1.973.243,00
Contract type:	Specific Targeted Research Project	*EC Contribution:*	1.400.000,00
Starting Date:	01/02/2007	*Actionline:*	The modernisation and sustainability of fisheries policies
Duration (months):	30		
Project website:	http://cobecos.jrc.it	*Keyword:*	Fisheries / Control & Enforcement

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The primary objective of COBECOS is to conduct a cost-benefit analysis of control schemes for management strategies relevant for the CFP and, based on this analysis, infer the potential economic benefits which might accrue from proper enforcement of the management measures.

We propose to achieve this objective on the basis of

1 an appropriate theory of fisheries enforcement,

2 empirical research involving intensive case studies and estimation of theoretical relationships,

3 computer modelling of fisheries enforcement (based on the theory and empirical estimations)

On this basis we expect to be able to contribute significantly to answering questions such as:

1 What are the costs and benefits of increased enforcement effort in particular fisheries?

2 If compliance alters (exogenously) in certain fisheries what are the costs and benefits?

3 What are the impacts of increased penalties for violations of fisheries rules?

4 How do different control schemes compare when the cost of enforcement is taken into account?

Partners

• UNIVERSITY OF ICELAND — HASKOLI ISLANDS	Iceland
• DEN KONGELIGE VETERINAER- OG LANDBOHOEJSKOLE	Denmark
• INSTITUTE OF BIOLOGY UNIVERSITY OF SOUTHERN DENMARK	Denmark
• IREPA ONLUS ISTITUTO RICERCHE ECONOMICHE PER LA PESCA E L'ACQUACOLTURA	Italy
• AGRICULTURAL ECONOMICS RESEARCH INSTITUTE	The Netherlands
• THE CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE	United Kingdom
• IMPERIAL COLLEGE FOR SCIENCE, TECHNOLOGY AND MEDICINE	United Kingdom
• NORGES HANDELSHxYSKOLE	Norway
• UNIVERSITY OF PORTSMOUTH	United Kingdom
• UNIVERSITE BRETAGNE OCCIDENTALE	France
• AZTI FUNDAZIOA	Spain
• COMMISSION OF THE EUROPEAN COMMUNITIES — DG JOINT RESEARCH CENTRE	Belgium

COMMIT: Creation of Multinatiannual Management Plans for Commitment

Call number:	FP6-2002-SSP-1	*DG responsible:*	DG MARE
Contract number:	502289	*Total Project Cost:*	2.421.185,00
Contract type:	Specific Targeted Research Project	*EC Contribution:*	1.407.498,00
Starting Date:	01/04/2004	*Actionline:*	The modernisation and sustainability of fisheries policies
Duration (months):	36		
Project website:	http://www.cefas.co.uk/projects/creation-of-multiannual-management-plans-for-commitment-(commit).aspx	*Keyword:*	Fisheries / Management

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The objective of multi-annual management strategies is to facilitate the long- and medium-term commitment of managers and to provide a better basis for fishers to plan their activities. The strategies must also be consistent with sustainable development and ensure the sustainability of the stocks. Where required they must also ensure the recovery of stocks from a depleted state. The study will be inter-disciplinary and focus on what elements must be in multi-annual management strategies to make them acceptable from fishers and other actors points of view to ensure commitment. The level of commitment is important in that it is fundamental in determining compliance with management regulations. The level of commitment is strongly influenced by social factors such as education as well as the economic constraints under which the fishing unit operates. Case studies will focus on mixed fisheries and the intention is to move away from stock to fishery-based advice. The various sources of uncertainty encountered in the management of fishery systems and their relative importance to the achievement of management objectives will be explicitly considered. In particular, the interactions between system components and their relative importance to the overall success of the strategies. Strategies will be implemented via scientifically based harvest rules that reduce annual fluctuations in exploitation strategy by setting appropriate technical measures, catch and effort limits and/or targets. Harvest rules will be developed on a case-specific basis by evaluating the biological and economic impacts of candidate rules, including the effect of non-compliance.

Partners

• THE CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE	United Kingdom
• FISHERIES RESEARCH SERVICE	United Kingdom
• DANISH INSTITUTE FOR FISHERIES RESEARCH	Denmark
• WAGENINGEN IMARES	The Netherlands
• INSTITUTO DE INVESTIGACAO AGRARIA E DAS PESCAS — IPIMAR	Portugal
• ESTONIAN MARINE INSTITUTE, UNIVERSITY OF TARTU	Estonia
• AGRICULTURAL ECONOMICS RESEARCH INSTITUTE	The Netherlands
• FINNISH GAME AND FISHERIES RESEARCH INSTITUTE (RIISTA- JA KALATALOUDEN TUTKIMUSLAITOS)	Finland
• IMPERIAL COLLEGE FOR SCIENCE, TECHNOLOGY AND MEDICINE	United Kingdom
• UNIVERSITY OF PORTSMOUTH	United Kingdom
• AZTI FUNDAZIOA	Spain

DEGREE: Development of fishing Gears with Reduced Effects on the Environment

Call number:	FP6-2004-SSP-4	*DG responsible:*	DG MARE
Contract number:	22576	*Total Project Cost:*	3.522.956,00
Contract type:	Specific Targeted Research Project	*EC Contribution:*	2.000.000,00
Starting Date:	01/02/2006	*Actionline:*	The modernisation and sustainability of fisheries policies
Duration (months):	38		
Project website:	http://www.rivo.dlo.nl/degree	*Keyword:*	Fisheries / Mitigating impacts

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The objectives of Policies Priority 8.1.B.1.3 Task 12 are: a) To develop new gears/fishing techniques that have a lower impact on benthic habitats, b) To quantify the potential reduction of the physical impact as well as the negative effects on benthic communities, c) To weigh the socioeconomic consequences of these changes against those of alternative management measures, e.g. closing of areas. Eleven participants propose to work together to develop new gears/fishing techniques that have a lower impact on benthic habitats, to quantify the potential reduction of the physical impact as well as the negative effects on benthic communities, to weigh the socioeconomic consequences of these changes against those of alternative management measures, e.g. closing of areas. They will do so by focusing on the development of modified towed gears. A generic approach is chosen in which cases (e.g. North Sea, Mediterranean) can be worked out. The overall ecological impact to benthic systems will be assessed by developing physical/biological models verified by tests at sea. This will provide a tool to fisheries managers to identify gear and sediment type combinations which will minimise impact to the habitat. A group of experts will work to appraise the socioeconomic consequences of the new gears and techniques. Gear types under study involve: otter trawls, beam trawls and dredges. The project will consist of six work packages, as follows: WP 1 Management and coordination WP 2 Modelling and quantification of benthic impact WP 3 Otter trawl modifications WP 4 Beam trawl and Dredge modifications WP 5 Economics WP 6 Dissemination and implementation The duration of the project will be 38 months. Special emphasis will be given to consultation with and dissemination of the results of the work to the fishing industry through national Industrial Liaison Groups and an adequate implementation of alternative fishing gears and techniques.

Partners

• WAGENINGEN IMARES	The Netherlands
• HAVFORSKNINGSINSTITUTTET	Norway
• FISHERIES RESEARCH SERVICE	United Kingdom
• DANISH INSTITUTE FOR FISHERIES RESEARCH	Denmark
• AN BORD IASCAIGH MHARA	Ireland
• THE CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE	United Kingdom
• INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	France
• UNIVERSITY OF PORTSMOUTH	United Kingdom
• AGRICULTURAL RESEARCH CENTRE	Belgium
• THE UNIVERSITY COURT OF THE UNIVERSITY OF ABERDEEN	United Kingdom
• CNR ISTITUTO DI PROCESSI CHIMICA-FISICA — SEZIONE DI MESSINA	Italy

DIPNET: Disease interactions and pathogen exchange between farmed and wild aquatic animal populations — a European network

Call number:	FP6-2003-SSP-3	*DG responsible:*	DG MARE
Contract number:	6598	*Total Project Cost:*	516.360,00
Contract type:	Coordination action	*EC Contribution:*	500.000,00
Starting Date:	01/10/2004	*Actionline:*	The modernisation and sustainability of fisheries policies
Duration (months):	24		
Project website:	http://www.dipnet.info/	*Keyword:*	Aquaculture / Disease

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DIPNET aims to integrate current knowledge on the transfer of pathogens between wild and cultured aquatic animal populations. The project will provide health specialists and other stakeholders with a forum for debate, reinforcing efficient communication and developing science based consensus. It addresses key issues needed to ensure sustainability and responsible exploitation of aquatic environments. The project's specific tasks will focus on:

1) a literature review of disease interactions and pathogen exchange between farmed and wild aquatic animals. Two workshops will be organised to facilitate information exchange and discussion. A final scientific report with bibliography will be produced and published at the end of the project,

2) a scientific review on risk assessments and modelling in aquatic animal health. Based on the material collected, an introductory risk assessment seminar, specifically targeted at potential users will be held,

3) a review on current activities and methods for fish disease epidemiology. A specific seminar will be also organised on these issues,

4) network building and knowledge dissemination.

Findings and recommendations will be disseminated to all stakeholders via the project website and will also be collated into reports to the European Commission. In addition to enhancing exchange of knowledge and scientific opinion in the area of aquatic animal health, the project will provide the European Commission with recommendations for fish health management and regulation based on sound scientific advice and definition of future research priorities.

Partners

• INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	France
• FISHERIES RESEARCH SERVICE	United Kingdom
• THE CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE	United Kingdom
• UNIVERSIDAD DE ZARAGOZA	Spain
• VETERINAERMEDISINSK OPPDRAGSSENTER AS	Norway

ECASA: Ecosystem Approach for Sustainable Aquaculture

Call number:	FP6-2003-SSP-3	*Total Project Cost:*	3.142.046,00
Contract number:	6540	*EC Contribution:*	2.486.256,00
Contract type:	Specific Targeted Research Project	*Actionline:*	The modernisation and sustainability of fisheries policies
Starting Date:	01/12/2004		
Duration (months):	36	*Keyword:*	Aquaculture / Interaction with Environment
Project website:	http://www.ecasa.org.uk		
DG responsible:	DG MARE		

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The ECASA project proposes an ecosystem approach to the aim of achieving a sustainable aquaculture industry in Europe. It will address this by (1) identifying plausible quantitative indicators of the effects of aquaculture on ecosystems through a process of expert working groups, workshops and meetings, (2) similarly, identifying indicators of the main drivers of ecosystem change affecting aquaculture, including natural and environmental pressures, (3) assessing both sets of indicators using existing datasets (the partners collectively have extensive data archives), considering each in the context of appropriate selection criteria, (4) developing a range of tools, particularly models, that encapsulate best process understanding at a wide range of scales, (5) testing these models and indicators in a wide variety of field locations across Europe (~10) encompassing major culture species and technologies, and covering a wide spectrum of environment types, selected according to criteria developed during the project, and (6) using this data to test and select the final 'toolpack' of models and indicators, including appropriate decision support tools to guide users to effective implementation. National annual meetings with stakeholders will be held to allow 2-way interaction ensuring the practical relevance of the work and that the user community achieves ownership of the project's outputs. A final international conference and workshop will be organised where the 'toolpack' of indicators and tools for effective environmental impact assessment and site selection will be demonstrated.

Partners

• SCOTTISH ASSOCIATION FOR MARINE SCIENCE	United Kingdom
• UNIVERSITY OF GOTEBORG	Sweden
• CENTRAL INSTITUTE FOR MARINE RESEARCH	Italy
• IFM-GEOMAR LEIBNIZ INSTITUT FUR MEERESWISSENSCHAFTEN	Germany
• AKVAPLAN-NIVA	Norway
• PLYMOUTH MARINE LABORATORY	United Kingdom
• INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	France
• IMAR — INSTITUTO DO MAR	Portugal

• NACIONALNI INSTITUT ZA BIOLOGIJO	Slovenia
• UNIVERSITY OF PORTSMOUTH	United Kingdom
• INSTITUT 'RUDJER BOSKOVIC'	Croatia
• INSTITUTE OF PLASMA PHYSICS, DEPARTMENT OF PHYSICS, UNIVERSITY OF CRETE	Greece
• HAIFA UNIVERSITY	Israel
• CENTRO INTERDIPARTIMENTALE IDEAS/CESD UNIVERSITY OF VENICE	Italy
• NAPIER UNIVERSITY	United Kingdom
• AZTI FUNDAZIOA	Spain

EFIMAS: Operational evaluation tools for fisheries management options

Call number:	FP6-2002-SSP-1	*DG responsible:*	DG MARE
Contract number:	502516	*Total Project Cost:*	7.523.725,00
Contract type:	Specific Targeted Research Project	*EC Contribution:*	4.500.000,00
Starting Date:	01/04/2004	*Actionline:*	The modernisation and sustainability of fisheries policies
Duration (months):	48		
Project website:	http://www.efimas.org	*Keyword:*	Fisheries / Management

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The objective of the EFIMAS project is to develop an operational management evaluation framework that allows evaluation of the trade-off between different management objectives when choosing between different management options. The evaluation framework will be developed to inform an exploratory, adaptive decision- making process. Evaluation tools will be developed to appraise the biological, social and economic effects of fisheries management measures in the EU, and these will be applied to important fisheries. The tools will take account of the dynamics in the fisheries systems, as well as of uncertainties and will include risk assessments.

The overall approach uses stochastic simulation techniques. These cover the full scope of the fisheries system from the fish resources, through data collection, assessment and management, and the response of the system to management. The input data to the management system are generated by a descriptive model, which is assumed to represent the 'true / real' system. The input data are then processed by a traditional assessment model, or by an alternative model, which is used to generate management advice. By simulating the effect that the resultant management actions would have on the 'true / real' system it is possible to generate a range of performance measures, covering the resource and the fishery. These measures can then be compared across different assessment models and management approaches. To give an example, a change from stock-based to fleet-based management would represent a change in paradigm of fisheries management. Such a change would allow advice to be given in the form of effort limits, and would account for technical interactions and might also involve economic and social parameters. In this case the evaluation tools would simulate both stock-structured input data and fleet-structured input data; it would perform the traditional assessment with stock-structured data and alternative assessment with fleet structured data. Replicate runs including stochastic variation would be used to estimate probability distributions of the performance measures of the two alternative management scenarios so that their performance could be compared.

Partners

• DANISH INSTITUTE FOR FISHERIES RESEARCH	Denmark
• HAVFORSKNINGSINSTITUTTET	Norway
• THE CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE	United Kingdom
• FISHERIES RESEARCH SERVICE	United Kingdom
• WAGENINGEN IMARES	The Netherlands
• *AGRICULTURAL RESEARCH CENTER — SEAFISHERIES DEPARTMENT*	*Belgium*
• INSTITUTO DE INVESTIGACAO AGRARIA E DAS PESCAS — IPIMAR	Portugal
• INSTITUTO RICERCHE ECONOMICHE PESCA E AQUACULTURA	Italy
• HELSINGIN YLIOPISTO	Finland
• INSTITUTE OF MARINE RESEARCH, NATIONAL BOARD OF FISHERIES	Sweden
• INSTITUTE OF FRESHWATER RESEARCH, NATIONAL BOARD OF FISHERIES	Sweden
• UNIVERSIDAD PABLO DE OLAVIDE	Spain
• AGRICULTURAL ECONOMICS RESEARCH INSTITUTE	The Netherlands
• INSTITUTE FOR FISHERIES MANAGEMENT AND COASTAL COMMUNITY DEVELOPMENT	Denmark
• *DANISH RESEARCH INSTITUTE OF FOOD ECONOMICS*	*Denmark*
• FINNISH GAME AND FISHERIES RESEARCH INSTITUTE (RIISTA- JA KALATALOUDEN TUTKIMUSLAITOS)	Finland
• IMPERIAL COLLEGE FOR SCIENCE, TECHNOLOGY AND MEDICINE	United Kingdom
• INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	France
• INSTITUTE OF MARINE BIOLOGY OF CRETE	Greece
• MARINE INSTITUTE	Ireland
• UNIVERSITY OF PORTSMOUTH	United Kingdom
• MORSKI INSTYTUT RYBACKI	Poland
• FOUNDATION FOR RESEARCH IN ECONOMICS AND BUSINESS ADMINISTRATION	Norway
• *THE UNIVERSITY OF NEWCASTLE*	*United Kingdom*
• EUSKAL HERRIKO UNIBERTSITATEA	Spain
• AZTI FUNDAZIOA	Spain
• UNIVERSIDAD DE BARCELONA	Spain
• CENTRO DE BIOLOGIA MOLECULAR SEVERO OCHOA, CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS	Spain
• NATIONAL CENTRE FOR MARINE RESEARCH	Greece

EMPAFISH: European Marine Protected Areas as tools for Fisheries management and conservation

Call number:	FP6-2003-SSP-3	*DG responsible:*	DG MARE
Contract number:	6539	*Total Project Cost:*	3.056.808,00
Contract type:	Specific Targeted Research Project	*EC Contribution:*	2.399.965,00
Starting Date:	01/03/2005	*Actionline:*	The modernisation and sustainability of fisheries policies
Duration (months):	36		
Project website:	http://www.um.es/empafish/	*Keyword:*	Fisheries / MPA's

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The present research proposal has three general objectives: I) To investigate the potential of different regimes of MPAs in Europe as measures to protect sensitive and endangered species, habitats and ecosystems from the effects of fishing. II) To develop quantitative methods to assess the effects of marine protected areas. III) To provide EU with a set of integrated measures and policiy proposals for the implementation of MPAs as fisheries and ecosystem management tools. Objective I is to be completed through the compilation, comparative analysis, and interpretation of data issued from selected case studies amongst EU MPAs, considering ecological (WP1), fishery (WP2), and socioeconomic (WP3) aspects (the latter making the distinction between consumptive, non-consumptive, and institutional benefits and costs). In all cases, data already exist, or, in some cases, will be sampled in situ to complete the inputs to subsequent tasks. Case studies will be selected among the most studied European MPAs after a first typification, considering the following major management regimes: i) no-take zones, ii) partial reserves, and iii) species-oriented reserves. A second source of information will emerge from meta-analysis of published results (both in the European context, and worldwide). Objective II is being approached by providing and evaluating impact indicators of MPA effects (WP4) (considering ecological, fisheries, and socioeconomic effect), and through the use of bio-economic modelling (WP5) (the latter serving also to complete the depiction of scenarios defined by different protection regimes, as empirically observed from previous WPs). Objective III will consist on, based on the results of prior WPs, providing management guidelines for the implementation, management, monitoring, and assessment of EU MPAs. A Decision Support System is to be designed as a tool to help stakeholders applying this essential instrument for the management of marine ecosystem and resources.

Partners

• MURCIA UNIVERSITY	Spain
• ISTITUTO PER L'AMBIENTE MARINO COSTIERO — CONSIGLIO NAZIONALE DELLE RICERCHE, SEZIONE DI ORISTANO	Italy
• PLYMOUTH MARINE LABORATORY	United Kingdom
• INSTITUTO ESPANOL DE OCEANOGRAFIA	Spain
• IMAR — INSTITUTO DO MAR	Portugal
• FONDAZIONE IMC CENTRO MARINO INTERNAZIONALE ONLUS	Italy
• DEPARTAMENTO DE FISICA APLICADA, UNIVERSITY OF ALICANTE	Spain
• UNIVERSITE BRETAGNE OCCIDENTALE	France
• UNIVERSIDAD DE LA LAGUNA	Spain
• L'UNIVERSITA'TA' MALTA — UNIVERSITY OF MALTA	Malta
• DIPARTIMENTO DI BIOLOGIA ANIMALE, UNIVERSITA DEGLI STUDI DI PALERMO	Italy
• DEPARTMENT OF ENDOCRINOLOGY AND METABOLISM, METABOLIC SECTION, UNIVERSITY OF PISA	Italy
• CENTRO DE BIOLOGIA MOLECULAR SEVERO OCHOA, CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS	Spain
• CENTRE DE LA RECHERCHE SCIENTIFIQUE	France

ENVIEFH: Environmental Approach to Essential Fish Habitat Designation

Call number:	FP6-2004-SSP-4	*Total Project Cost:*	937.508,00
Contract number:	22466	*EC Contribution:*	535.873,00
Contract type:	Specific Support Action	*Actionline:*	The modernisation and sustainability of fisheries policies
Starting Date:	01/12/2005		
Duration (months):	27	*Keyword:*	Fisheries / Interaction with Environment
Project website:	http://arch.her.hcmr.gr/enviefh/		
DG responsible:	DG MARE		

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During the last decade, the importance of identifying, designating and protecting Essential Fish Habitats (EFH) has been widely recognised. EFH mapping and designation applies to the spatial component of Fisheries Management, a component that has often been neglected in previously enforced fisheries policies. The new framework regulation on the European Communities Common Fisheries Policy requires the proper introduction of habitat identification and protection into developing new fishery policies. The EnviEFH project is based on the latest advances in EFH mapping and identification, which are characterized by a broad approach to EFH designation including all the physical, chemical and biological properties of marine areas and the associated sediment and biological assemblages that sustain fish populations throughout the various stages of their life cycle. Under the ecosystem approach to fisheries management, species life history information is introduced in an integrated EFH mapping effort including the mapping of ocean production processes, species spawning, nursery and feeding aggregations, over-exploited areas and alternative fishing grounds under the specialized development of a comprehensive EFH Designation Tool. The overall objective of the EnviEFH project is to facilitate the spatial component of fisheries management, which primarily includes the proper designation of Essential Fish Habitats and their protection through new fisheries policies.

Partners

• HELLENIC CENTER FOR MARINE RESEARCH	Greece
• THE UNIVERSITY COURT OF THE UNIVERSITY OF ABERDEEN	United Kingdom
• CENTRO DE BIOLOGIA MOLECULAR SEVERO OCHOA, CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS	Spain
• CENTRE DE LA RECHERCHE SCIENTIFIQUE	France

EUROCARP: Disease and Stress Resistant Common Carp: Combining Quantitative, Genomic, Proteomic and Immunological makers to identify high performance strains, families and individuals

Call number:	FP6-2004-SSP-4	*DG responsible:*	DG MARE
Contract number:	22665	*Total Project Cost:*	1.387.283,00
Contract type:	Specific Targeted Research Project	*EC Contribution:*	1.094.283,00
Starting Date:	01/01/2006	*Actionline:*	The modernisation and sustainability of fisheries policies
Duration (months):	36		
Project website:	http://eurocarp.haki.hu/	*Keyword:*	Aquaculture / Genetics & Breeding

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The common carp is the most important farmed freshwater fish species in the world. Eastern European carp gene banks have been responsible for the selective improvement of carp for intensive and semi-intensive pond culture in Europe and their dissemination worldwide. Several serious disease problems such as Koi herpesvirus (KHV), and erythrodermatitis (Aeromonas salmonicida and A. hydrophila) threaten carp farming in many countries. Selection in carp has tended to develop high performing but inbred strains for crossbreeding. The inclusion of disease and stress resistance as traits within breeding programmes will require the use of modern quantitative and molecular genetic tools. Disease resistance has proved to be a difficult trait to assess and improve in fish as direct challenges on potential broodstock run the risk of turning such fish into carriers.

The project will assess the levels of diversity in four representative Hungarian common carp strains for reduced susceptibility to bacterial and viral infection presently causing major disease losses. The main objectives are:

1. the identification of strains, families and individual carp with enhanced disease resistance response and growth performance;
2. the development of tools that will help in the future management and improvement of common carp strains worldwide: disease and stress microarray, immunological and proteomic markers, Linkage map incorporating type1 and 2 markers;
3. the design of optimised breeding programmes informed by quantitative, functional genomic, proteomic and immunological data on disease response and how this correlates with other production traits;
4. the dissemination of information on the tools and disease resistance. Multi-trait selection programmes will be released continuously through existing networks to increase the sustainable production of carp worldwide.

The project will adopt a multidisciplinary approach and combine data gathered through classical quantitative genetics, functional genomics, immunology and proteomics to identify strains, families and individual carp with different susceptibility to viral and bacterial infections. Overall levels of resistance will be correlated with other performance traits (growth and pond survival). The results obtained through the different approaches will be used to assess overall levels of strain additive and strain non-additive (heterosis) genetic variation for the above mentioned traits and identify genes with differential expression under bacterial and viral infection and compare these to fish that have been exposed to other stressors to look for stress signature genes. A second generation carp gene linkage map will also be developed as a tool for future QTL development of this species. These data sets will be modelled to identify new optimised approaches to selective improvement of common carp strains.

Partners

• HALASZATI ES ONTOZESI KUTATO INTEZET	Hungary
• RUSSIAN FEDERAL RESEARCH INSTITUTE FOR FISHERIES AND OCEANOGRAPHY	Russia
• FEDERAL CENTER OF FISH GENETICS AND SELECTION (MOSCOW BRANCH)	Russia
• AKVAFORSK (INSTITUTE OF AQUACULTURE RESEARCH AS)	Norway
• *THE CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE*	*United Kingdom*
• THE UNIVERSITY OF LIVERPOOL	United Kingdom
• THE UNIVERSITY OF STIRLING	United Kingdom

FASTFISH: On farm assessment of stress level in fish

Call number:	FP6-2004-SSP-4	*DG responsible:*	DG MARE
Contract number:	22720	*Total Project Cost:*	1.785.233,00
Contract type:	Specific Targeted Research Project	*EC Contribution:*	1.105.524,00
Starting Date:	01/01/2006	*Actionline:*	The modernisation and sustainability of fisheries policies
Duration (months):	36		
Project website:	http://fastfish.imr.no	*Keyword:*	Aquaculture / Welfare

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The main goal is to develop the first database and expert system for on farm welfare and stress level assessment in farmed fish in all ontogenetic stages (FAST-TOOL). This will include validated non-invasive behavioural and chemical stress level indicators that can be used to monitor and quantify acute and chronic stress levels.

The main focus areas for potential indicators will be feeding motivation and individual and group swimming behaviour. Feeding motivation depends on the metabolic state of the fish and is well known to be sensitive to stress, and can be assessed by e.g. quantifying anticipatory behaviour before feeding or feed intake. Secondly, swimming behaviour is an indicator of behaviour control level, and should be sensitive to stress level and physiological state. The hypothesis is that under increasing stress an individual will change from individual goal directed behaviour to group controlled behaviour, and finally loose behavioural control. The identified indicators will be cross-validated as proxy measures for stress using immunological and physiological methods.

To interpret these indicators correctly and identify the stressors, essential information on present and previous rearing conditions must be available. This will be achieved by the database and expert system, which also will give early warning when rearing conditions or stress level indicators approach harmful conditions. The expert systems will also include forecasts based on artificial neural networks.

FASTFISH will use European sea bass and Atlantic salmon as model species and tailor the FAST-TOOL to commercial production by testing on selected hatcheries and farms in periods with potentially high and low stress levels. Finally, FASTFISH will evaluate the market-factors and governance mechanisms that will enhance the implementation of FAST-TOOL and estimate costs and benefits of its application in the industry.

Partners

• HAVFORSKNINGSINSTITUTTET	Norway
• HELLENIC CENTER FOR MARINE RESEARCH	Greece
• AGRICULTURAL ECONOMICS RESEARCH INSTITUTE	The Netherlands
• INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	France
• NORGES VETERINAERHOGSKOLE	Norway
• INSTITUTE OF PLASMA PHYSICS, DEPARTMENT OF PHYSICS, UNIVERSITY OF CRETE	Greece

FEUFAR: The Future of European Fisheries and Aquaculture Research

Call number:	FP6-2005-SSP-5A	*Total Project Cost:*	626.800,00
Contract number:	044178	*EC Contribution:*	499.680,00
Contract type:	Specific Support Action	*Actionline:*	The modernisation and sustainability of fisheries policies
Starting Date:	01/01/2007		
Duration (months):	20	*Keyword:*	Fisheries / Dissemination — Synthesis — Prospective / Aquaculture
Project website:	http://www.feufar.eu		
DG responsible:	DG MARE		

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The goal of the FEUFAR project is to define the research required in the medium term (10 years) to enable exploitation and farming of aquatic resources in the context of key challenges and risks for meeting sustainability requirements. The main output of this exercise will be a publication outlining the key challenges, strategic options and research needs concerning fisheries and aquaculture in both European waters and waters in which European fleets are operating under European agreements. The project will contribute to the implementation of a future Maritime Policy and to further strengthen the European Marine Research Area through better anticipation of research needs in the field of fisheries and aquaculture. The principle aims of FEUFAR are in a 20 months period: (1) to provide a 'state of the art' inventory of existing foresight analyses world wide, including the distillation of key messages, identifying themes, threats, drivers and developments in science and policy; (2) to build scenarios, taking into account interactions between ecological, economical and societal factors; (3) to define key challenges, strategic options, as well as paths toward a more sustainable future and following research needs; (4) by organising a platform for discussion, generate input from all relevant parties (fisheries and aquaculture sector, research institutes, policy-makers) to this process, substantiating the analysis and simultaneously generate support to the outcome. Dissemination of both the outcome and the steps of the process will be undertaken through publications, leaflets and a website. FEUFAR will seek the opinions of relevant stakeholders and it will consider the possible implications of long-term or sudden climate change, new technologies, changes in societal values and organizational structures, globalized markets for fish and other marine products, food-security, and changes in management practices or fishing techniques.

Partners

• WAGENINGEN IMARES	The Netherlands
• HELLENIC CENTER FOR MARINE RESEARCH	Greece
• FUTURIBLES	France
• THE CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE	United Kingdom
• INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	France
• FISKERIFORSKNING	Norway
• FONDATION EUROPEENNE DE LA SCIENCE	France

FINE: Fisheries-induced Evolution

Call number:	FP6-2005-SSP-5A	*DG responsible:*	DG MARE
Contract number:	044276	*Total Project Cost:*	3.215.812,00
Contract type:	Specific Targeted Research Project	*EC Contribution:*	1.844.542,00
Starting Date:	01/07/2007	*Actionline:*	The modernisation and sustainability of fisheries policies
Duration (months):	36		
Project website:	http://www.iiasa.ac.at/Research/EEP/FinE	*Keyword:*	Fisheries / Fish Biology

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The Specific Targeted Research Project on Fisheries-induced Evolution will analyze the prevalence and consequence of fisheries-induced adaptive changes in exploited fish stocks of particular relevance to fisheries management in the European Union. This objective will be realized through a carefully selected set of empirical phenotypic case studies, the investigation of salient adaptive genetic variation, and through the development of new quantitative models for understanding trends and evaluating management options. The FinE project will thus maintain and extend the leading position of European research in the application of innovative evolutionary paradigms to exploited marine ecosystems and will deliver insights and recommendations for addressing the overlooked evolutionary dimension of modern fisheries

Partners

• INTERNATIONAL INSTITUTE FOR APPLIED SYSTEM ANALYSIS	Austria
• HAVFORSKNINGSINSTITUTTET	Norway
• FISHERIES RESEARCH SERVICE	United Kingdom
• *DANISH INSTITUTE FOR FISHERIES RESEARCH*	*Denmark*
• WAGENINGEN IMARES	The Netherlands
• FINNISH GAME AND FISHERIES RESEARCH INSTITUTE (RIISTA- JA KALATALOUDEN TUTKIMUSLAITOS)	Finland
• INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	France
• BUNDESFORSCHUNGSANSTALT FUR FISCHEREI	Germany
• BANGOR UNIVERSITY	United Kingdom
• NORWEGIAN COLLEGE OF FISHERIES SCIENCE, UNIVERSITY OF TROMSO	Norway
• CENTRO DE BIOLOGIA MOLECULAR SEVERO OCHOA, CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS	Spain
• THE UNIVERSITY OF OSLO	Norway
• CATHOLIC UNIVERSITY OF LEUVEN	Belgium

FISBOAT: Fisheries independent survey based operational assessment tools

Call number:	FP6-2002-SSP-1	*DG responsible:*	DG MARE
Contract number:	502572	*Total Project Cost:*	2.606.000,00
Contract type:	Specific Targeted Research Project	*EC Contribution:*	1.500.000,00
Starting Date:	01/03/2004	*Actionline:*	The modernisation and sustainability of fisheries policies
Duration (months):	40		
Project website:	http://www.ifremer.fr/drvecohal/fisboat/	*Keyword:*	Fisheries / Management

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Current fish stock assessment is based primarily on fisheries data (catches/landings) and models of population demography (cohort analysis). Collapse of important fish stocks in the past (e.g. cod in Canada) have revealed that fisheries based demographic indices suffer from a number of limitations. Probably the most serious limitation is that the indication of population collapse is only perceived very late with such indices, in comparison with other biological indices. The purpose of this project is to develop fish stock assessment tools based on survey data only and evaluate how these perform in producing advice within defined management procedures. The project spans several disciplines (i.e., population biology, survey methods, stock assessment, management), with the objectives of (1) producing a comprehensive diagnostic of population status using survey-based population demography and biological indices and (2) evaluate its performance in a management context. A variety of methods is proposed to obtain direct estimates (and associated errors) of population abundance, mortality, spatial occupation and maturity at age. Direct demographic estimates feed assessment population models to deliver model-based estimates of abundance, survey catch ability, natural and fishing mortality. Different categories of population assessment models are developed for to different biological situations. The simplest models track the dynamics in total abundance while others are age or length structured. The assessment procedure is evaluated by simulation testing using a framework containing a population dynamics model, an observation model, an assessment model and a harvest rule model. The ability of the assessment procedure to capture changes in population biology and survey catch ability is evaluated. The sensitivity of the assessment procedure to uncertainties in survey estimates is also tested, so that alternative survey designs can be explored. The assessment tools are developed within the frame of specific case studies. Software routines are developed with standard input data format and are documented. The operationality of these tools is tested and demonstrated during workshops. The new comprehensive advice is compared with the advice currently in operation.

Partners

• INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	France
• HAVFORSKNINGSINSTITUTTET	Norway
• THE CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE	United Kingdom
• FISHERIES RESEARCH SERVICE	United Kingdom
• WAGENINGEN IMARES	The Netherlands
• SOCIETA ITALIANA DI BIOLOGIA MARINA	Italy
• ASSOCIATION POUR LA RECHERCHE ET LA DEVELOPPEMENT DES METHODES ET PROCESSUS INDUSTRIELS	France
• IMPERIAL COLLEGE FOR SCIENCE, TECHNOLOGY AND MEDICINE	United Kingdom
• MORSKI INSTYTUT RYBACKI	Poland
• AZTI FUNDAZIOA	Spain
• NATIONAL CENTRE FOR MARINE RESEARCH	Greece

GENIMPACT: Evaluation of genetic impact of aquaculture activities on native populations- A European network

Call number:	FP6-2004-SSP-4	*Total Project Cost:*	584.091,00
Contract number:	22802	*EC Contribution:*	500.000,00
Contract type:	Coordination action	*Actionline:*	The modernisation and sustainability of fisheries policies
Starting Date:	01/11/2005		
Duration (months):	24	*Keyword:*	Aquaculture / Interaction with Environment
Project website:	http://genimpact.imr.no		
DG responsible:	DG MARE		

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The genetic impact of aquaculture activities has aroused a great deal of concern among scientist and the general public. The perceived risks are often associated with detrimental impacts on wild populations and the ecosystem through ecological interactions and interbreeding, posing a threat to biodiversity. Public health issues are also matters of concern. There is a need to strengthen the knowledge base required to assess the genetic impact of aquaculture on the environment, and to improve the dissemination of information to a wider public. Genimpact will integrate current knowledge of the impact of aquaculture on the genetics of wild stocks and identify future research needs. To this end, internationally recognised scientists and European enterprise groupings have linked up to study the genetic impact of aquaculture production on native populations, discuss the results with aquaculture, breeding, environmental and animal welfare organisations, and provide information for policy-makers. The scientific information will be used to develop consensus statements on the genetic impact of farming activities and its implications for aquaculture management, stock conservation and environment safety, and integrate the scientific basis for the establishment of preventive measures, for important marine aquaculture species like Atlantic salmon, Atlantic cod, European sea bass, gilthead sea bream, turbot, halibut, scallops, mussels, oysters and European lobster. Genimpact will cover (1) Genetic impacts of escapees and restocking and introduction of non-native strains, (2) Genetic impacts of culture practices, (3) Triploids (both fish and shellfish), tetraploid mother oyster strains, (4) Growth enhancement in fish by gene transfer, (5) Recombinant DNA vaccines, (6) Genetic impact evaluation, monitoring tools and modelling, (7) Predictive tools: modelling and assessment of risk. The results will be disseminated to scientists, industry, NGOs, policy-makers and the press.

Partners

• HAVFORSKNINGSINSTITUTTET	Norway
• CENTRAL INSTITUTE FOR MARINE RESEARCH	Italy
• FISHERIES RESEARCH SERVICE	United Kingdom
• HASKOLI ISLANDS	Iceland
• AKVAFORSK (INSTITUTE OF AQUACULTURE RESEARCH AS)	Norway
• INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	France
• UNIVERSIDAD DE OVIEDO	Spain
• DEPT. OF GENERAL PSYCHOLOGY — UNIVERSITY OF PADOVA	Italy
• UNIVERSITE DE MONTPELLIER 2	France
• ARISTOTELEIO PANEPISTIMIO THESSALONIKIS — ARISTOTLE UNIVERSITY OF THESSALONIKI	Greece

IBEFISH: Interaction between Environment and Fisheries — a Challenge to Management

Call number:	FP6-2005-SSP-5A	*DG responsible:*	DG MARE
Contract number:	044192	*Total Project Cost:*	197.106,00
Contract type:	Specific Support Action	*EC Contribution:*	167.991,00
Starting Date:	01/12/2006	*Actionline:*	The modernisation and sustainability of fisheries policies
Duration (months):	10		
Project website:	http://www.environment.fi/syke/ibefish	*Keyword:*	Fisheries / Interaction with Environment

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The main objectives of the IBEFish project are 1) to share the results and theoretical understandings gained in past projects with regard to the ecosystem approach in fisheries management with a special focus on the role of participation in integrated management of the interaction between environment and fisheries 2) to make practical recommendations for improving fisheries management towards an ecosystem-based approach especially emphasising the need for an enhanced knowledge-base, legitimacy and trust-building in the management. The first task will include a synthesis of the results of projects on interaction between environment and fisheries from a perspective of effective participation in integrated management. Some of our case studies explore lessons learned in integrated management of other natural resources, which will result in improved understanding of the ecosystem management. The synthesis uses a framework for evaluating effectiveness of participatory decision-making. The second task will be to disseminate the findings to decision-makers, the industry, environmentalists, regulators and the scientific community. The IBEFish will organise a workshop to convene researchers working on similar questions all over Europe. In addition, we will disseminate our findings to decision-makers and stakeholders by producing policy briefs and to a larger audience in professional press. Finally, the project will outline new research questions to support effective management of the interaction between environment and fisheries. The IBEFish project support 'progressive implementation of the ecosystem-based approach to fisheries management', a policy-relevant objective that was highlighted in the research priority of the call. The project will both explore the conceptual requirements of the ecosystem approach to the management as well as the aspects of effective participation of a wide range of actors.

Partners

• FINNISH ENVIRONMENT INSTITUTE	Finland
• UNIVERSITY OF GOTEBORG	Sweden
• INSTITUTE FOR FISHERIES MANAGEMENT AND COASTAL COMMUNITY DEVELOPMENT	Denmark
• HELMHOLTZ-ZENTRUM FUR UMWELTFORSCHUNG GMBH — UFZ	Germany
• THE UNIVERSITY OF NEWCASTLE	United Kingdom

ICES-FISHMAP: Update and revision of the ICES Atlas of North Sea fishes: a web-based application

Call number:	FP6-2003-SSP-3	*DG responsible:*	DG MARE
Contract number:	513661	*Total Project Cost:*	167.632,00
Contract type:	Specific Support Action	*EC Contribution:*	99.968,00
Starting Date:	01/10/2004	*Actionline:*	The modernisation and sustainability of fisheries policies
Duration (months):	14		
Project website:	http://www.ices.dk/marine-world/ices-fishmap.asp	*Keyword:*	Fisheries / Management

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In 1993 ICES published an Atlas of North Sea Fishes based on research vessel surveys in the 1980s. Since then data have become available for both earlier and later years, from more surveys, and covering a wider geographical area. After 1993 there have also been major changes in the status of several commercial species and interest in non-target species has grown.

An update of the 1993 Atlas will provide information on fish distributions and document changes in abundance over a period of more than 30 years. Seasonal changes in distribution patterns will be illustrated on the basis of the quarterly IBTS surveys (91-96). Species-specific information reviewing the life history, ecology, exploitation and references will be updated and expanded where appropriate. Information on ecosystem changes will be added.

Funding is sought for Phase 1 of a two phase project. Phase 1 will be a pilot project that will create an interactive, web-based North Sea Fish Atlas focusing on the main commercial species. The Atlas will be available through the ICES website.

When further funds are secured for Phase 2, the same framework will be used to provide similar information for all fish species caught in European surveys, and to extend the area covered, to include the whole NE Atlantic shelf. As well as being web- based, in Phase 2 the NE Atlantic Fish Atlas will be published as a colour report.

The North Sea Fish Atlas will be the definitive source of synthesized information on the biology and exploitation of North Sea fishes, and a description of the current state of biodiversity of its fish fauna. Users will be all those with an interest in North Sea fisheries and the North Sea ecosystem, such as fishery managers, ecosystem managers, conservationists, marine scientists, politicians, and the general public. The use of Internet technologies will ensure that information on North Sea fishes is rapidly disseminated to a broad audience within the EU and beyond.

Partners

• WAGENINGEN IMARES	The Netherlands
• THE CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE	United Kingdom
• INTERNATIONAL COUNCIL FOR THE EXPLOIRATION OF THE SEA	Denmark

IMAGE: Indicators for fisheries MAnaGement in Europe

Call number:	FP6-2005-SSP-5A	*DG responsible:*	DG MARE
Contract number:	044227	*Total Project Cost:*	1.745.400,00
Contract type:	Specific Targeted Research Project	*EC Contribution:*	1.000.000,00
Starting Date:	01/11/2006	*Actionline:*	The modernisation and sustainability of fisheries policies
Duration (months):	36		
Project website:	http://www.fishindicators.eu	*Keyword:*	Fisheries / Ecosystem Approach

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The Common Fisheries Policy (CFP) requires the progressive implementation of an ecosystem-based approach to fisheries management (EBFM), including measures to 'limit the environmental impact of the CFP'. EBFM requires that managers take account of a wide range of fisheries impacts when setting objectives and attempts to meet these objectives will need to be supported by reliable scientific advice and effective management decision-making. Indicators can support the decision-making process by (1) describing the pressures affecting the ecosystem, the state of the ecosystem and the response of managers, (2) tracking progress towards meeting management objectives and (3) communicating trends in complex impacts and management processes to a non-specialist audience. The project 'Indicators for fisheries MAnaGement in Europe' (IMAGE) seeks to develop an operational framework of candidate indicators to support ecosystem-based fisheries management, to elaborate these indicators into comprehensive dashboards to support management decision-making, to develop methodology to integrate this information into tools supporting the decision-making process, to develop a framework that can evaluate management strategies based on indicators, and to test their applicability in regional case studies, taking into account the diversity of the fishery systems in Europe. The application of indicators in management systems requires that they are understood by, and therefore accessible to, stakeholders and a major focus of the project will be to engage stakeholders through the emerging Regional Advisory Councils (RAC). IMAGE will thus support the development of an effective EBFM in the context of the CFP, while also contributing to the applied science needed to support the emerging European Marine Strategy and Maritime Policy. Regional collaboration in the project will help to build applied scientific competence in the European research area.

Partners

• WAGENINGEN IMARES	The Netherlands
• DANISH INSTITUTE FOR FISHERIES RESEARCH	Denmark
• COISPA TECNOLOGIA & RICERCA	Italy
• INSTITUTE FOR FISHERIES MANAGEMENT AND COASTAL COMMUNITY DEVELOPMENT	Denmark
• THE CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE	United Kingdom
• INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	France
• ESTONIAN MARINE INSTITUTE, UNIVERSITY OF TARTU	Estonia

IMPACT FISH: Impact Assessment of the FP4 and FP5 Research Programmes on Fisheries, Aquaculture and Seafood Processing Research Area and the Fishery Industry

Call number:	FP6-2003-SSP-3	*DG responsible:*	DG MARE
Contract number:	513651	*Total Project Cost:*	177.973,00
Contract type:	Specific Support Action	*EC Contribution:*	177.973,00
Starting Date:	01/07/2004	*Actionline:*	The modernisation and sustainability of fisheries policies
Duration (months):	12		
Project website:	www.easonline.org/files/impactfish/impact_fish_extended_summary_report.pdf	*Keyword:*	Fisheries / Dissemination — Synthesis — Prospective / Aquaculture

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European aquaculture, fisheries and seafood processing development has benefited from considerable efforts in EC RTD projects. Reforms in European policies and programmes, accompanied by changing public priorities, have affected the way in which the seafood sector is perceived and hence its further development. The 4th and 5th Framework Programmes in aquaculture, fisheries and seafood processing RTD were built upon specific objectives for the continued development of the sector over the period 1994-2002. As part of the integration and strengthening of the European Research Area, this specific support action (SSA) will provide an impact assessment of RTD in the research areas mentioned above and on the fishery industry (including aquaculture production systems). Impact assessment is being built-in to RTD and especially policy development programmes as a tool to monitor the effects of the research and the need for policy change — especially the latter in accordance with COM(2002) 276 'Communication from the Commission on Impact Assessment'. While previously published impact assessments have focussed on research areas across a wide scope, this SSA covers the specific areas of aquaculture and fisheries. It brings together the diverse sources of information on the projects, and solicits direct feedback on RTD impact from a wide range of stakeholders who carry out and use the results of the projects/programmes. This SSA will monitor current information and will collect new information in the form of questionnaires. The final report will identify trends and tendencies and will provide a basis for the comparison of the framework programmes; their continuity related to original programme objectives, and their impact on both research and the industry. It will also provide guidelines for future actions and policies throughout the European aquaculture and fisheries sector, at a time when planning of the FP7 programme is reaching an advanced stage.

Partners

• EUROPEAN AQUACULTURE SOCIETY	Belgium
• OCEANIC DEVELOPPEMENT	France

IMPASSE: Environmental impacts of invasive alien species in aquaculture

Call number:	FP6-2005-SSP-5A	*DG responsible:*	DG MARE
Contract number:	044142	*Total Project Cost:*	610.559,00
Contract type:	Coordination action	*EC Contribution:*	548.102,00
Starting Date:	01/12/2006	*Actionline:*	The modernisation and sustainability of fisheries policies
Duration (months):	24		
Project website:	http://www.hull.ac.uk/hifi/IMPASSE/index.html	*Keyword:*	Aquaculture / Interaction with Environment

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The project is a Coordination Action (CA) designed to support the draft EC regulation 'Rules governing the introduction of exotic species and on containment of stock in aquaculture' (FISH A3/RB/2004025-A3). IMPASSE goal is to develop guidelines for environmentally sound practices for introductions and translocations in aquaculture, guidelines on quarantine procedures, and risk assessment protocols and procedures for assessing the potential impacts of invasive alien species in aquaculture. The project mobilises a consortium of experts in the management of aquatic alien species, including persons who drafted the ICES and EIFAC Codes of Practice on Introductions and Transfers of Aquatic Organisms, and key contributors in complimentary EC projects. It is organised into six work packages addressing the following issues (1) Review of scientific information on alien species for aquaculture; (2) Analysis of the impacts of alien species on aquatic ecosystems; (3) Risk assessment and modelling; (4) Development of guidelines; (5) Consultation and dissemination; (6) Scientific coordination and project management. The main activities require considerable collation and interrogation of existing information, development of strategic guidelines and protocols, and wide consultation and dissemination. IMPASSE will produce a review of knowledge, develop methods and protocols to assess the environmental and economic risks of species introductions, stimulate exchange of scientific knowledge and opinion, and develop guidelines for environmentally sound practices for introductions and translocations in aquaculture. This will provide the information necessary for managers and policy-makers to develop policy, legislation and measures to mitigate adverse impacts, both at European and national levels. There is a comprehensive consultation and dissemination plan to ensure involvement and uptake by stakeholders.

Partners

• THE UNIVERSITY OF HULL	United Kingdom
• CENTRAL SCIENCE LABORATORY	United Kingdom
• FEDERATION OF EUROPEAN AQUACULTURE PRODUCERS	Belgium
• GOLLASCH CONSULTING	Germany
• HALASZATI ES ONTOZESI KUTATO INTEZET	Hungary
• KLAIPEDA UNIVERSITY	Lithuania
• THE CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE	United Kingdom
• INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	France
• BUNDESFORSCHUNGSANSTALT FUR FISCHEREI	Germany
• BOURNEMOUTH UNIVERSITY	United Kingdom
• DEPARTMENT OF ENERGY, FLORENCE UNIVERSITY	Italy
• ISTITUTO UNIVERSITARIO DI STUDI SUPERIORI DI PAVIA	Italy
• ENVIRONMENT AGENCY	United Kingdom
• VETERINAERMEDISINSK OPPDRAGSSENTER AS	Norway

IN EX FISH: Incorporating the extrinsic drivers into fisheries management

Call number:	FP6-2004-SSP-4	*Total Project Cost:*	1.823.150,00
Contract number:	22710	*EC Contribution:*	1.499.970,00
Contract type:	Coordination action	*Actionline:*	The modernisation and sustainability of fisheries policies
Starting Date:	01/01/2006		
Duration (months):	36	*Keyword:*	Fisheries / Interaction with Environment
Project website:	http://www.inexfish.org/		
DG responsible:	DG MARE		

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Traditional single species fisheries management has failed in part because the single species are part of a wider ecosystem and must be managed in that context. The IN EX FISH project aims to improve the responsiveness of European fisheries management to the anthropogenic and non-anthropogenic factors which affect exploited fish populations. A holistic, ecosystem approach will be used to assess the effects of a range of factors on the main functions of the biological cycle of exploited fish species and the ecosystem that supports them. A comprehensive synthesis of the effects of anthropogenic and non-anthropogenic factors on exploited fish populations will be produced and used for metadata analysis. The relative impact of each factor will be assessed and a ranking produced. The project will use four case studies to integrate this knowledge and develop management schemes. Metrics to measure the status of the environment and several exploited fish species in the North East Atlantic (comprising the North Sea regional advisory council — RAC area, ICES area VIa and Icelandic Seas), the Baltic Sea RAC area, the West Iberian Sea (within the south-western waters RAC area), and the Mediterranean Sea RAC area will be produced. These will be used to develop a management regime for use in European fisheries management which is sensitive to the fluctuations in environmental quality and state. The IN EX FISH project recognises that humans are part of the marine ecosystem, and that some are dependent upon it for their livelihoods. The project will validate its management recommendations through consultation with stakeholder groups and incorporate their feedback into the project recommendations.

Partners

• THE UNIVERSITY OF LIVERPOOL	United Kingdom
• DANISH INSTITUTE FOR FISHERIES RESEARCH	Denmark
• WAGENINGEN IMARES	The Netherlands
• INSTITUTO DE INVESTIGACAO AGRARIA E DAS PESCAS — IPIMAR	Portugal
• HAFRANNSOKNASTOFNUNIN	Iceland
• MORSKI INSTYTUT RYBACKI	Poland
• FONDATION NATIONALE DES SCIENCES POLITIQUES	France
• HEINRICH-HEINE-UNIVERSITAT DC<SSELDORF	Germany
• STOCKHOLMS UNIVERSITET	Sweden

INDECO: Developing Indicators of Environmental Performance of the Common Fisheries Policy

Call number:	FP6-2003-SSP-3	*DG responsible:*	DG MARE
Contract number:	513754	*Total Project Cost:*	538.413,00
Contract type:	Coordination action	*EC Contribution:*	500.000,00
Starting Date:	01/12/2004	*Actionline:*	The modernisation and sustainability of fisheries policies
Duration (months):	24		
Project website:	http://www.ieep.eu/project-minisites/indeco/index.php	*Keyword:*	Fisheries / Ecosystem Approach

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Indicators can be valuable tools for tracking change, identifying problems and monitoring implementation of policies and results. They are increasingly used to assess the efficacy of EU policies. A robust set of informative indicators will help policy- and decision-makers to evaluate the performance of management measures, as well as ensure accountability to the public through regular information. The aim of the coordination action is to achieve a more coherent approach to indicator use in the implementation of the Common Fisheries Policy across the EU, by synthesising existing research and analysis. A set of indicators to measure the effectiveness of fisheries management, particularly environmental aspects, is to be identified. Operational models establishing the relationship between fishing activities and changes in the marine environment will be used to underpin some of the ecological indicators. In addition, the project will identify data gaps and ways of addressing these, taking account of the need for cost- effectiveness. The project will also seek ways of ensuring that agreed indicators are used in the policy process. The results will be targeted at fisheries managers and other stakeholders. Overall, the action is firmly embedded in, and will respond directly to, EU policy calling for the development of fisheries/environment indicators. A number of work packages will examine existing efforts to develop indicators. Since a considerable amount of work has been done already, networking will be of particular importance. In order to bring expertise in different countries together, several meetings and two conferences will be held. As the combined scientific and policy expertise of the participants covers both fisheries and environmental issues, the CA will be a vital contribution to developing indicators of environmental performance of fisheries management in the EU

Partners

• INSTITUTE FOR EUROPEAN ENVIRONMENTAL POLICY	United Kingdom
• CONFEDERATION OF EUROPEAN PAPER INDUSTRIES	Belgium
• CENTRAL INSTITUTE FOR MARINE RESEARCH	Italy
• FISHERIES RESEARCH SERVICE	United Kingdom
• DANISH INSTITUTE FOR FISHERIES RESEARCH	Denmark
• WAGENINGEN IMARES	The Netherlands
• HELLENIC CENTER FOR MARINE RESEARCH	Greece
• ESTONIAN MARINE INSTITUTE, UNIVERSITY OF TARTU	Estonia
• INSTITUT DU DEVELOPPEMENT DURABLE ET DES RESSOURCES AQUATIQUES	France
• INSTITUTE OF COASTAL RESEARCH, NATIONAL BOARD OF FISHERIES	Sweden
• JOINT NATURE CONSERVATION COMMITEE	United Kingdom
• INSTITUTE FOR FISHERIES MANAGEMENT AND COASTAL COMMUNITY DEVELOPMENT	Denmark
• THE CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE	United Kingdom
• FINNISH GAME AND FISHERIES RESEARCH INSTITUTE (RIISTA- JA KALATALOUDEN TUTKIMUSLAITOS)	Finland
• IMPERIAL COLLEGE FOR SCIENCE, TECHNOLOGY AND MEDICINE	United Kingdom
• INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	France
• MORSKI INSTYTUT RYBACKI	Poland
• CIRPS (INTERUNIVERSITY RESEARCH CENTRE FOR SUSTAINABLE DEVELOPMENT)-UNIVERSITY OF ROME 'LA SAPIENZA'	Italy
• CENTRO INTERDIPARTIMENTALE IDEAS/CESD UNIVERSITY OF VENICE	Italy
• CNR ISTITUTO DI PROCESSI CHIMICA-FISICA — SEZIONE DI MESSINA	Italy

ISTAM: Improve Scientifc and Technical Advice on fisheries Management (West Africa)

Call number:	FP6-2004-SSP-4	*Total Project Cost:*	653.691,00
Contract number:	22774	*EC Contribution:*	614.310,00
Contract type:	Coordination action	*Actionline:*	The modernisation and sustainability of fisheries policies
Starting Date:	01/01/2006		
Duration (months):	36	*Keyword:*	Fisheries / International Cooperation / Management
Project website:	http://www.projet-istam.org/		
DG responsible:	DG MARE		

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The Coordination Action ISTAM aims at supporting national and regional public institutions dealing with fisheries management that have acknowledged the need and the interest for developing better fisheries information systems, data management, stock evaluations and diffusion of the information on the situation of the marine resources. ISTAM relates to the coordination of methods oriented scientific activities such as: (1) the improvement of the quality and the quantity of the data which are used for the evaluations of stocks status; (2) the improvement in the general perspective of fisheries management, of the stock evaluations with the particular objective to promote the use of the appropriate methods at the appropriate regional level on the basis of the most appropriate models; (3) the improvement of the availability of datasets both validated and documented; (4) the dialogue for the identification of future research needs in order to improve the quality and the quantity of information that supports fisheries management. For operational reasons (practical management of the project during its active phase), the project gathers only a limited number of COPACE country members. During the life of ISTAM, that one may consider as a pilot phase prior to a larger project to come, these countries will act as leaders by doing and promoting at the regional level the realisation of inventories, case studies and methodological comparisons. ISTAM activities will be advertised and diffused at the regional level. The coordination of the project will also install near the Commission 'sous-régionale des Pêches' in Dakar a project representative person involved in the coordination and the management of the project.

Partners

• INSTITUT DE RECHERCHE POUR LE DEVELOPPEMENT	France
• HAVFORSKNINGSINSTITUTTET	Norway
• INSTITUT MAURITANIEN DE RECHERCHES OCEANOGRAPHIQUES ET DES PECHES	Mauritania
• AGROCAMPUS RENNES	France
• CENTRE NATIONAL DES SCIENCES HALIEUTIQUES DE BOUSSOURA	Guinea
• COMMISSION SOUS REGIONALE DES PECHES	Senegal
• INSTITUT UNIVERSITAIRE DE PECHE ET D'AQUACULTURE	Senegal
• INSTITUTO ESPANOL DE OCEANOGRAFIA	Spain
• INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	France
• INIAP/IPIMAR — INSTITUTO NACIONAL DE INVESTIGACAO AGRARIA E DAS PESCAS	Portugal
• UNIVERSITY OF PORTSMOUTH	United Kingdom
• INSTITUT NATIONAL DE RECHERCHE HALIEUTIQUE	Morocco
• UNIVERSIDAD DE LAS PALMAS DE GRAN CANARIA	Spain

NECESSITY: Nephrops and CEtacean Species Selection Information and Technology

Call number:	FP6-2002-SSP-1	*DG responsible:*	DG MARE
Contract number:	501605	*Total Project Cost:*	7.725.285,88
Contract type:	Specific Targeted Research Project	*EC Contribution:*	4.274.000,00
Starting Date:	01/03/2004	*Actionline:*	The modernisation and sustainability of fisheries policies
Duration (months):	38		
Project website:	http://www.rivo.dlo.nl/sites/necessity	*Keyword:*	Fisheries / Mitigating impacts

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Twenty three institutes propose to work together in two Task Groups, i.e. Nephrops and cetaceans to develop alternative gear modifications and fishing tactics in collaboration with the fishing industry to reduce by-catches in the relevant Nephrops and pelagic fisheries, without reducing the catch of target species significantly. The project consists of ten work packages, as follows: WP1: Management and coordination WP2: Statistical planning, modelling and analysis WP3: Species selective Nephrops gears WP4: Alternative tactics Nephrops fisheries WP5: Biological effects Nephrops fisheries WP6: Cetacean by-catch and alternative tactics WP7: Gear modifications Pelagic Trawls — Cetaceans WP8: Impact on Cetacean stocks WP9: Socio-economic repercussions WP10: Dissemination and implementation The duration of the project is 38 months. Special emphasis will be given to disseminating the results of the work to the fishing industry and recommending proper implementation of alternative gears and fishing tactics, as well as knowledge transfer between partners from North-West Europe and the Mediterranean. Biological and socio- economic effects will also be evaluated.

Partners

• WAGENINGEN IMARES	The Netherlands
• HAVFORSKNINGSINSTITUTTET	Norway
• THE CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE	United Kingdom
• FISHERIES RESEARCH SERVICE	United Kingdom
• DANISH INSTITUTE FOR FISHERIES RESEARCH	Denmark
• AGRICULTURAL RESEARCH CENTER — SEAFISHERIES DEPARTMENT	Belgium
• AN BORD IASCAIGH MHARA	Ireland
• CONSTAT	Denmark
• EGE UNIVERSITESI	Turkey
• INSTITUTO DE INVESTIGACAO AGRARIA E DAS PESCAS — IPIMAR	Portugal
• SEA FISH INDUSTRY AUTHORITY	United Kingdom
• INSTITUTE OF MARINE RESEARCH, NATIONAL BOARD OF FISHERIES	Sweden
• DANISH RESEARCH INSTITUTE OF FOOD ECONOMICS	Denmark

• FINNISH GAME AND FISHERIES RESEARCH INSTITUTE (RIISTA- JA KALATALOUDEN TUTKIMUSLAITOS)	Finland
• INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	France
• INSTITUTE OF MARINE BIOLOGY OF CRETE	Greece
• UNIVERSITE DE LA ROCHELLE	France
• AZTI FUNDAZIOA	Spain
• THE UNIVERSITY COURT OF THE UNIVERSITY OF ST ANDREWS	United Kingdom
• CNR ISTITUTO DI PROCESSI CHIMICA-FISICA — SEZIONE DI MESSINA	Italy
• NATIONAL UNIVERSITY OF IRELAND, CORK — UNIVERSITY COLLEGE CORK	Ireland
• CENTRO DE BIOLOGIA MOLECULAR SEVERO OCHOA, CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS	Spain
• NATIONAL CENTRE FOR MARINE RESEARCH	Greece

OATP: Evaluation of the promotion of Offshore Aquaculture Through a Technology Platform

Call number:	FP6-2005-SSP-5A	*Total Project Cost:*	232.228,20
Contract number:	044290	*EC Contribution:*	201.300,00
Contract type:	Specific Support Action	*Actionline:*	The modernisation and sustainability of fisheries policies
Starting Date:	01/01/2007		
Duration (months):	14	*Keyword:*	Aquaculture / New Rearing Technologies
DG responsible:	DG MARE		

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The main objective of the project is to investigate the opportunity and usefulness for the aquaculture industry of promoting offshore aquaculture through a technological platform. The general methodology of the approach is to form a consortium of service providers, manufacturers, aquaculture practitioners with offshore experience, research and development organisations and agencies from the sector which will pool the available knowledge and experience by the most efficient and practical methods available. The goal is to ensure that the stated objective above is addressed accurately, comprehensively and efficiently. This will be achieved by: (i) a survey by way of a bespoke questionnaire, administered by direct interview that will cover all members of consortium and additional stakeholders in EU/EETA region; (ii) informal seminars in key regions to identify key areas for future discussions; (iii) an interim report for circulation in advance of international workshop; (iv) international workshop for partners and stakeholders; (v) a final report, with recommendations and roadmap of way forward that will reflect the proceedings of the workshop and the considered views of the partners on the functions of a technology platform in achieving goals set out above. In the course of carrying out a thorough evaluation the project will achieve a number of clearly defined goals, which will of themselves have a measurable impact beyond the achievement of the stated objective of the project. These impacts will include the following:

1) development of a widely based consensus on RTD priorities in the Offshore Aquaculture sector. This will inform strategic planning at various levels including EU National and Corporate. Feedback will be efficient, thorough and immediate through the gateway of the participants & partners in the project;

2) raise the overall investment in the offshore aquaculture development sector (in terms of EU, Member States, private funding and venture capital) by showing a common vision of the potential and the intermediate steps required to achieve it;

3) strengthen networks and encourage the development of clusters and centres of excellence; In particular the facilitation of cluster development between public and private organisations and across disciplines in this sector, which is very much in the phase of early development and is as yet quite fragmented in nature, will be of critical benefit to realising future potential;

4) identify, and objectively catalogue, areas of current strengths, areas of weakness, which require strengthening and gap areas where there is a lack of capability or expertise within the ERA;

5) at a regional level, assist regions in identifying and addressing challenges and in particular opportunities in this developing sector;

6) identify and catalogue the pre-requisites for development of a consistent and coherent policy and regulatory framework for offshore Aquaculture in the EU and EAA;

7) an increase in public awareness, understanding and acceptance of the technologies concerned and the benefits accruing to the wider public through their appropriate deployment.

Partners

• MARINE INSTITUTE	Ireland
• CENTRO TECNOLOGICO DEL MAR-FUNDACION CETMAR	Spain
• SINTEF FISHERIES AND AQUACULTURE	Norway

POORFISH: Probabilistic assessment, management and advice model for fishery management in the case of poor data availability

Call number:	FP6-2004-SSP-4	*DG responsible:*	DG MARE
Contract number:	22745	*Total Project Cost:*	1.429.138,00
Contract type:	Specific Targeted Research Project	*EC Contribution:*	1.000.000,00
Starting Date:	01/10/2005	*Actionline:*	The modernisation and sustainability of fisheries policies
Duration (months):	36		
Project website:	http://www.poorfish.eu	*Keyword:*	Fisheries / Management

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The objective of the project is to create an advisory system (assessment, advice, and/or management) approach based on methods able to deal with data poor systems (utilizing both expert knowledge and published information in addition to existing data sets). Guidelines will be developed for assessment and management of fisheries for sustainability in data poor situations. There are basically at least three types of data poor situations:

a) Small scale fisheries with usually several target species of otherwise mixed fisheries (many coastal fisheries in Mediterranean and northern Baltic areas)

b) Large scale, but recently developed fisheries (many deep sea fisheries belong to this group)

c) Large scale fisheries, where the quality of data is getting worse (poor data due to e.g. misreporting and discarding).

This project will focus on each of these types, examining a number of case studies within each category. These case studies will have unique characteristics, allowing appropriate tools to be developed and modelled within a diverse range of examples.

Partners

• UNIVERSITY OF PORTSMOUTH	United Kingdom
• INSTITUT MAURITANIEN DE RECHERCHES OCEANOGRAPHIQUES ET DES PECHES	Mauritania
• THE CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE	United Kingdom
• FINNISH ENVIRONMENT INSTITUTE	Finland
• INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	France
• UNIVERSIDAD ISLAS BALEARES	Spain
• ARISTOTELEIO PANEPISTIMIO THESSALONIKIS — ARISTOTLE UNIVERSITY OF THESSALONIKI	Greece
• INSTITUT DE RECHERCHE POUR LE DEVELOPPEMENT	France
• CENTRE DE RECHERCHE OCEANOGRAPHIQUE DE DAKAR THIAROYE	Senegal
• HELSINGIN YLIOPISTO	Finland
• CENTRO DE BIOLOGIA MOLECULAR SEVERO OCHOA, CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS	Spain

PROFET POLICY: A European Platform for the Communication of European RTD results to Stakeholders in Fisheries and Aquaculture

Call number:	FP6-2004-SSP-4	*Total Project Cost:*	855.966,00
Contract number:	22771	*EC Contribution:*	764.144,00
Contract type:	Specific Support Action	*Actionline:*	The modernisation and sustainability of fisheries policies
Starting Date:	01/11/2005		
Duration (months):	36	*Keyword:*	Fisheries / Dissemination — Synthesis — Prospective / Aquaculture
Project website:	http://www.profetpolicy.info/		
DG responsible:	DG MARE		

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PROFET Policy proposes to build a platform for the communication and dissemination of the results of EU-funded research projects, in fisheries and aquaculture, of the 5th and 6th Framework Research Programmes. Use of modern communication tools will be used to facilitate the flow of information of policy-relevant results to a wide-range of stakeholders, using primarily a web-based structure for the publishing of Technical Leaflets. Seminars will be organised on a thematic and regional basis, covering fisheries and aquaculture, which will focus on promoting an exchange of views between aquaculture producers, fishermen, scientists, National and European policy-makers and other stakeholders. Core elements of the seminars will be the presentation of results and discussion of the RTD needs of each sector so as to recommend clear guidelines and topics for future European Union Research Programmes. Member Organisations of the representative European Associations will be closely involved in the organisation of the seminars. The PROFET POLICY workshops will also provide a platform for the presentation of ongoing FP6 projects under the area of scientific support to policy, as well as established fisheries and aquaculture organisations and networks that have direct relevance to the individual workshop theme, using posters or presentation stands, thus providing valuable exposure of these projects to policy-oriented stakeholders. PROFET Policy builds on the experience and results of Aquaflow and PROFET, involving partners from these successful projects, with further development of the informatic and management tools developed in addition to the use of well established networks for communication and dissemination. This aspect assures cost-effective and experienced management for the project.

Partners

• FEDERATION OF EUROPEAN AQUACULTURE PRODUCERS	Belgium
• EUROPEAN AQUACULTURE SOCIETY	Belgium
• EUROFISH INTERNATIONAL ORGANISATION	Denmark
• EUROPEAN ASSOCIATION OF FISH PRODUCERS ORGANISATIONS	Belgium
• AQUATT UETP LIMITED	Ireland
• INTERNATIONAL COUNCIL FOR THE EXPLOIRATION OF THE SEA	Denmark

PRONE: Precautionary risk methodology in fisheries

Call number:	FP6-2004-SSP-4	*DG responsible:*	DG MARE
Contract number:	22589	*Total Project Cost:*	1.347.918,00
Contract type:	Specific Targeted Research Project	*EC Contribution:*	1.100.000,00
Starting Date:	01/01/2006	*Actionline:*	The modernisation and sustainability of fisheries policies
Duration (months):	36		
Project website:	http://www.prone-fish.eu/	*Keyword:*	Fisheries / Management

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Improved quantitative and qualitative information on the biological, social and economic consequences of current and alternative actions and tools available to fisheries managers are required to better manage the various risks in European fisheries.

The main objective of the project is to investigate how risk analysis theory can be adapted to European fisheries management, embracing the full process from stock assessment, projection and advice, via management decisions, to the practical implementation of the management measures, including control.

Improved communication of such information to stakeholders and fisheries managements will make it easier to achieve the long term goals of fisheries management, which ultimately aim to impact human behaviour and through this to modulate human impacts on nature.

The components to be incorporated include risk identification and probabilistic evaluations of the potential consequences of alternative management actions (risk assessment), the formulation of of tools to manage the risks (risk management), and the development of mechanisms to ensure that the outputs of risk assessment and the risk management options available are adequately understood by stakeholders (risk communication).

A variety of potential formal approaches to risk management that have been applied in other relevant fields will be compiled and ones that may have considerable merits for European fisheries management will be identified.

The current risk methods are tested and compared to alternative methods. Recruitment models are developed to improve the predictability of future productivity of the stocks. Game theory will be applied to study how international agreements should deal with risk management. The risks caused by dioxin for consumers are studied in Baltic herring case study.

Partners

• HELSINGIN YLIOPISTO	Finland
• HELLENIC CENTER FOR MARINE RESEARCH	Greece
• UNIVERSITY OF AKUREYRI	Iceland
• THE CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE	United Kingdom
• IMPERIAL COLLEGE FOR SCIENCE, TECHNOLOGY AND MEDICINE	United Kingdom
• UNIVERSITY OF PORTSMOUTH	United Kingdom
• AZTI FUNDAZIOA	Spain

PROTECT: Marine Protected areas as a tool for ecosystem conservation and fisheries management

Call number:	FP6-2003-SSP-3	*DG responsible:*	DG MARE
Contract number:	513670	*Total Project Cost:*	3.007.123,00
Contract type:	Specific Targeted Research Project	*EC Contribution:*	2.000.000,00
Starting Date:	01/01/2005	*Actionline:*	The modernisation and sustainability of fisheries policies
Duration (months):	42		
Project website:	http://mpa-eu.net/	*Keyword:*	Fisheries / MPA's

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The aim of the PROTECT project is provide policy advice and develop methodologies to assess the potential of different Marine Protected Areas (MPA) regimes. MPAs will be assessed for their effectiveness to protect sensitive species, habitats and ecosystems from the adverse effects of fishing, to promote the enhancement of vulnerable species or ecosystems and to assist in the sustainable harvesting of economically valuable species. A number of European institutes propose to work together in three regional case studies and in common work packages on the methodology development, assessment and modelling of European MPA's PROTECT will define, assess and evaluate the parameters determining the success and failure of different regimes of protected areas based on resource, ecosystem and socioeconomic objectives. Because of the large variety of marine problems and conflicts that arise in European MPAs, a range of approaches will be studied. This project involves the application of a shared approach in a series of case studies in different European regional seas, ranging from 'no take zones' and marine reserves to protected areas, where different levels of fishing are accepted either on a seasonal or activity basis. These case studies will encompass: (1) a top-down controlled ecosystems, (2) a 'wasp-waist' ecosystem and (3) a deep water coral ecosystem. In each of the case studies, the project will: — Evaluate the design of MPAs in terms of location, size, level of regulation of human activities, ecosystems characteristics, temporal scale as well as monitoring, assessment and management structures. — Identify the potential fishery benefits in terms of protection of exploited populations and protection of essential habitats, including the benefits in adjacent areas. — Investigate the socioeconomic impacts of the MPA on local communities, user groups and impacts on the decision-making process.

Partners

• DANISH INSTITUTE FOR FISHERIES RESEARCH	Denmark
• UNIVERSITY OF GOTEBORG	Sweden
• HAVFORSKNINGSINSTITUTTET	Norway
• FISHERIES RESEARCH SERVICE	United Kingdom
• WAGENINGEN IMARES	The Netherlands
• IFM-GEOMAR LEIBNIZ INSTITUT FUR MEERESWISSENSCHAFTEN	Germany
• FISKERIVERKET	Sweden
• THE CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE	United Kingdom
• DANISH RESEARCH INSTITUTE OF FOOD ECONOMICS	Denmark
• FINNISH GAME AND FISHERIES RESEARCH INSTITUTE (RIISTA- JA KALATALOUDEN TUTKIMUSLAITOS)	Finland
• INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	France
• UNIVERSITY OF PORTSMOUTH	United Kingdom
• MORSKI INSTYTUT RYBACKI	Poland
• NATIONAL UNIVERSITY OF IRELAND, GALWAY	Ireland
• NORWEGIAN COLLEGE OF FISHERIES SCIENCE, UNIVERSITY OF TROMSO	Norway
• NATIONAL OCEANGRAPHIC CENTRE	United Kingdom
• CENTER FOR MOLECULAR NEUROBIOLOGY, HAMBURG UNIVERSITY	Germany

RECLAIM: REsolving CLimAtic IMpacts on fish stocks

Call number:	FP6-2005-SSP-5A	*Total Project Cost:*	3.019.101,00
Contract number:	044133	*EC Contribution:*	1.700.000,00
Contract type:	Specific Targeted Research Project	*Actionline:*	The modernisation and sustainability of fisheries policies
Starting Date:	01/01/2007		
Duration (months):	36	*Keyword:*	Fisheries / Interaction with Environment
Project website:	http://www.climateandfish.eu/		
DG responsible:	DG MARE		

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Climate change will impact fisheries resources and challenge managers to develop sustainable exploitation strategies. Knowledge on the impacts of climate on fisheries resources is still fragmentary. RECLAIM will summarize current knowledge, test process understanding, improve predictive capacity and formulate future research hypotheses by examining trophic processes, geographical distributions and essential habitat requirements for marine and shellfish in the NE-Atlantic. A conceptual framework will be developed to distinguish between processes acting on individual (physiology, behaviour), population (predation, competition) and ecosystem (physical habitat qualities, biological productivity, trophic coupling) levels. The framework structures a literature review to detect gaps in knowledge and, where possible, distinguishes between climate and anthropogenic influences. A comparative analysis follows quantifying climate variability and changes in distribution and productivity of (i) individual species, (ii) selected fish and shellfish communities, and (iii) ecosystem structure and functioning. Target species represent different commercially important resources, ecosystem components (pelagics, demersals), and play key trophic roles (wasp-waist, apex predators) within NE-Atlantic ecosystems. Changes in ecosystem structure and functioning will be analysed from fisheries and scientific survey data including planktonic, benthic and fish production and consumption in relation to climate forcing and fishing. Relevant spatial and temporal scales of climate change and variability will be explored using time series analyses, spatial statistics and coupled 3-D hydrodynamic ecosystem models. Using a variety of approaches, RECLAIM will both hind cast as well as forecast the effects of climate change on the productivity and distribution of fish and shellfish stocks to formulate hypotheses and research needs to be addressed in future EU research.

Partners

• WAGENINGEN IMARES	The Netherlands
• HAVFORSKNINGSINSTITUTTET	Norway
• FISHERIES RESEARCH SERVICE	United Kingdom
• DANISH INSTITUTE FOR FISHERIES RESEARCH	Denmark
• THE CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE	United Kingdom
• INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	France
• STICHTING KONINKLIJK NEDERLANDS INSTITUUT VOOR ONDERZOEK DER ZEE	The Netherlands
• DEPARTMENT OF CLINICAL MEDICINE, SECTION FOR NEUROLOGY, UNIVERSITY OF BERGEN, NORWAY	Norway
• CENTER FOR MOLECULAR NEUROBIOLOGY, HAMBURG UNIVERSITY	Germany

REPROFISH: Integrating basic and applied knowledge on finfish reproduction

Call number:	FP6-2005-SSP-5A	*Total Project Cost:*	152.775,00
Contract number:	044224	*EC Contribution:*	146.400,00
Contract type:	Specific Support Action	*Actionline:*	The modernisation and sustainability of fisheries policies
Starting Date:	01/02/2007		
Duration (months):	24	*Keyword:*	Aquaculture / Genetics & Breeding / Dissemination — Synthesis — Prospective
Project website:	http://www.reprofish.eu		
DG responsible:	DG MARE		

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During the 5th and 6th framework programs, a number of projects have been funded by the EU to improve our knowledge of fish reproduction in order to control the most pertinent steps of the reproductive cycle. These projects have now produced a wealth of information that has been/is being disseminated mainly as scientific papers and communications to scientific or aquaculture meetings, resulting in a large amount of scattered information.

Reprofish is a fish reproduction information dissemination project aiming at gathering scientists and the aquaculture industry to identify and extract the most important results of past and current research programmes, and to prepare future actions. This will not only make results much more readily available to the scientific community, but will also facilitate access to this information for the industry and in a digested form for the interested public (e.g. consumer and their organisations). It is expected that integrating these data will release synergistic effects, as the robustness and significance of the combination will largely surpass the simple sum of the data generated by each of these projects. This will be achieved through a series of specific objectives including:

1) the development of a user friendly website, providing up to date information to the public, the aquaculture industry and scientists;

2) the edition of a review of ground-breaking research in a special issue of a respected scientific journal;

3) the submission of a knowledge gap advisory report to the European Commission.

It will result in a unique state-of-the-art overview of both basic and applied aspects of finfish reproduction in a sustainable aquaculture perspective.

Partners

• INSTITUT NATIONAL DE LA RECHERCHE AGRONOMIQUE / UNIVERSITE DE RENNES 1	France
• HAVFORSKNINGSINSTITUTTET	Norway
• BIJVOET CENTER FOR BIOMOLECULAR RESEARCH, DEPT. CHEMISTRY, UTRECHT UNIVERSITY	The Netherlands
• *INSTITUT NATIONAL DE LA RECHERCHE AGRONOMIQUE*	*France*
• CENTRO DE BIOLOGIA MOLECULAR SEVERO OCHOA, CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS	Spain

SAMI: Synthesis of Aquaculture and Marine Ecosystems Interactions

Call number:	FP6-2004-SSP-4	*Total Project Cost:*	190.013,00
Contract number:	22656	*EC Contribution:*	163.810,00
Contract type:	Specific Support Action	*Actionline:*	The modernisation and sustainability of fisheries policies
Starting Date:	01/11/2005		
Duration (months):	18	*Keyword:*	Aquaculture / Interaction with Environment / Dissemination — Synthesis — Prospective
Project website:	http://www.sami.biology.sdu.dk		
DG responsible:	DG MARE		

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During the last decade several EU projects have dealt with the environmental issues of marine aquaculture in Europe and the current knowledge in this field has grown significantly. Most of the results are, however, not readily accessible and an overview and synthesis of the most important environmental issues is virtually lacking. It is therefore difficult to integrate this knowledge into the environmental requirements of the Common Fisheries Policy (CFP). We aim to bring experts from the many aspects of aquaculture-environment interactions together for a discussion of the most significant advances in the knowledge from the existing and on-going research and for a discussion of the future perspectives of marine aquaculture within Europe particularly in the environmental context, and for integration of these advances into the environmental requirements of the CFP. From these discussions a review and synthesis of the obtained results will be presented in a high-impact international journal to bring the consequences of recent advances to more general attention and to provide suggestions for the future EU research agenda. To fulfil these objectives the project will organise a workshop for experts in the field, create a writing group to produce a review and synthesis for high-impact international publication and finally edit a book with contributions from experts in the field.

Partners

• INSTITUTE OF BIOLOGY — UNIVERSITY OF SOUTHERN DENMARK	Denmark
• SCOTTISH ASSOCIATION FOR MARINE SCIENCE	United Kingdom
• INSTITUTE OF PLASMA PHYSICS, DEPARTMENT OF PHYSICS, UNIVERSITY OF CRETE	Greece
• CENTRO DE BIOLOGIA MOLECULAR SEVERO OCHOA, CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS	Spain

SARDONE: Improving assessement and management of small pelagic species in the Mediterranean

Call number:	FP6-2005-SSP-5A	*DG responsible:*	DG MARE
Contract number:	044294	*Total Project Cost:*	2.265.244,00
Contract type:	Specific Targeted Research Project	*EC Contribution:*	1.099.756,00
Starting Date:	01/03/2007	*Actionline:*	The modernisation and sustainability of fisheries policies
Duration (months):	36		
Project website:	http://www.ismaran.it/ismaran/projects/sardone/sardone.html	*Keyword:*	Fisheries / Management

Coordinator Dr Arneri Enrico
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The project aims at developing a series of tools which will enable a better understanding, stock assessment and fishery management of small pelagic fish resources (anchovy and sardine) of the Mediterranean. The three major stocks and fisheries i.e. the NW Mediterranean, the Adriatic and the Aegean have been chosen. Investigations will aim at detecting nursery areas, at developing echo-surveys for recruitment strength estimation, at filling the complete gap in knowledge on the ecology of late larvae and juveniles, at improving the selectivity of current fishing gear, at assessing the impact of fry fisheries on the stocks, at exploring the application of novel stock assessment methodologies to Mediterranean small pelagic stocks.

Partners

• CNR ISTITUTO DI PROCESSI CHIMICA-FISICA — SEZIONE DI MESSINA	Italy
• HELLENIC CENTER FOR MARINE RESEARCH	Greece
• *INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER*	*France*
• AZTI FUNDAZIOA	Spain
• CENTRO DE BIOLOGIA MOLECULAR SEVERO OCHOA, CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS	Spain

SEACASE: Sustainable extensive and semi-intensive coastal aquaculture in Southern Europe

Call number:	FP6-2005-SSP-5A	*Total Project Cost:*	2.391.402,00
Contract number:	044483	*EC Contribution:*	1.556.691,00
Contract type:	Specific Targeted Research Project	*Actionline:*	The modernisation and sustainability of fisheries policies
Starting Date:	01/01/2007		
Duration (months):	36	*Keyword:*	Aquaculture / Production Methods & Systems
Project website:	http://www.seacase.org		
DG responsible:	DG MARE		

Coordinator Dr Dinis Maria Theresa
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Traditional extensive coastal and semi-intensive aquaculture systems in Southern Europe are facing difficulties, especially due to increased competition for coastal areas by other candidate users and market competition, due to low-price products from intensive aquaculture. The positive effects of extensive and semi-intensive aquaculture in coastal areas — including environmental protection and restoration in areas of particular ecological interest, employment opportunity and development in rural and coastal areas — have been clearly recognised within EU policy.

The final goal of the SEACASE project is to develop effective tools for maintenance of competitiveness, productivity, profitability and thus sustainability of extensive and semi-intensive aquaculture production in Southern Europe, while minimizing its environmental impacts and improving the quality and public image of its products.

The project will be based on case studies covering a wide variety of production systems and geographical locations (Portugal, Spain, France, Italy and Greece), although some basic technological improvements will also be studied. Environmentally-friendly farming protocols will be analyzed and/or developed and certification possibilities will be assessed and proposed for voluntary use by the industry. Codes of Good Practices in European Aquaculture and product safety as well as animal welfare will be promoted. The project will also contribute to the preservation of wetlands and coastal areas of particular ecological interest and develop innovative diets to reduce waste output. Quality markers will be studied in order to be able to differentiate aquaculture products from extensive and semi-intensive systems from the ones produced in intensive systems. Some of such markers may also facilitate product traceability. A socioeconomic assessment of the production systems used in the case studies will be produced. Where possible this analysis will be completed by an assessment of potential non-market benefits and costs, including social and patrimonial aspects.

Partners

• CENTER OF MARINE SCIENCES OF ALGARVE	Portugal
• CENTRAL INSTITUTE FOR MARINE RESEARCH	Italy
• HELLENIC CENTER FOR MARINE RESEARCH	Greece
• INSTITUTO DE INVESTIGACAO AGRARIA E DAS PESCAS — IPIMAR	Portugal
• CENTRE RiGIONAL D'EXPiRIMENTATION ET D'APPLICATION AQUACOLE	France
• SYNDICAT MIXTE 'FORUM DES MARAIS ATLANTIQUES'	France
• INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	France
• UNIVERSITE BRETAGNE OCCIDENTALE	France
• INSTITUTE OF PLASMA PHYSICS, DEPARTMENT OF PHYSICS, UNIVERSITY OF CRETE	Greece
• DEPT. OF GENERAL PSYCHOLOGY — UNIVERSITY OF PADOVA	Italy
• UNIVERSITA DEGLI STUDI DI ROMA 'TOR VERGATA'	Italy
• CENTRO DE BIOLOGIA MOLECULAR SEVERO OCHOA, CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS	Spain

SHEEL: Secure and Harmonised European Electronic Logbook

Call number:	FP6-2002-SSP-1	*DG responsible:*	DG MARE
Contract number:	502153	*Total Project Cost:*	2.236.599,00
Contract type:	Specific Targeted Research Project	*EC Contribution:*	1.200.000,00
Starting Date:	01/01/2004	*Actionline:*	The modernisation and sustainability of fisheries policies
Duration (months):	30		
Project website:	http://ipsc.jrc.ec.europa.eu/showca.php?id=22	*Keyword:*	Fisheries / Control & Enforcement

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The fisheries logbook is one of the most vital parts of the fisheries management all over the world.

The project aims at developing and demonstrating an operational, cost-effective and secure electronic transfer system that will convey logbook information to and between authority agencies in order to facilitate improved monitoring and control. The development and demonstration of the system involves the integration of existing on board and onshore systems, the testing of a common format for exchanging fisheries information between vessels and authorities, a security mechanism for transferring the data on shore as well as inspection facilities for performing a cost effective on board check. The system, in its final form, encompasses all the existing manually treated reports that the skipper has to fill in today, so as to facilitate their work by respecting the existing legislation on fisheries management.

Partners

• INESC INOVACAO — INSTITUTO DE NOVAS TECNOLOGIAS	Portugal
• OMNI TRACKING SYSTEMS LIMITED	United Kingdom
• SAINSEL SYSTEMAS NAVALES S.A.	Spain
• SODENA	France
• RADIOMIDUN LTD	Iceland
• DIRECTORATE OF FISHERIES	Norway
• LATVIAN MARINE ENVIRONMENT BOARD, MINISTRY OF THE ENVIRONMENT	Latvia
• GENERAL INSPECTION SERVICE OF THE MINISTRY OF AGRICULTURE, NATURE MANAGEMENT AND FISHERIES	The Netherlands
• THE ICELAND DIRECTORATE OF FISHERIES	Iceland
• FISHERIES RESEARCH INSTITUTE, UNIVERSITY OF ICELAND	Iceland
• NORTH EAST ATLANTIC FISHERIES COMMISSION	United Kingdom
• NAVIGS S.A.R.L	France
• THRANE AND THRANE A/S	Denmark
• UBIZEN NV/SA	Belgium
• DIRECTION DES PECHES MARITIMES ET DE L'AQUACULTURE- MINISTRY OF AGRICULTURE	France
• DEPARTMENT FOR ENVIRONEMENT, FOOD AND RURAL AFFAIRS	United Kingdom
• THE PORTUGUESE GENERAL INSPECTORATE OF FISHERIES	Portugal

• SECRETARIA GENERAL DE PESCA MARITIMA	Spain
• FISKERIVERKET	Sweden
• GLOBALSIGN NV/SA	Belgium
• EUTELSAT S.A	France
• COMMISSION OF THE EUROPEAN COMMUNITIES — DG JOINT RESEARCH CENTRE	Belgium
• ELSACOM SPA	Italy
• INMARSAT GLOBAL LIMITED	United Kingdom
• C-TRACE LIMITED	United Kingdom

SLIME: Restoration of the European eel population; pilot studies for a scientific framework in support of sustainable management

Call number:	FP6-2004-SSP-4		tific-framework-in-support-of-sustainable-management-(slime).aspx
Contract number:	22488		
Contract type:	Specific Support Action	*DG responsible:*	DG MARE
Starting Date:	01/01/2006	*Total Project Cost:*	220.430,00
Duration (months):	6	*EC Contribution:*	199.999,00
Project website:	http://www.cefas.co.uk/projects/restoration-of-the-european-eel-population-pilot-studies-for-a-scien-	*Actionline:*	The modernisation and sustainability of fisheries policies
		Keyword:	Fisheries / Management

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The eel stock in Europe is in rapid decline, and both ICES/EIFAC and the European Commission have advised urgent management action to protect and restore the stock. Given the scattered distribution of the eel in inland and coastal waters over Europe, sustainable management and restoration of the common spawning stock in the Sargasso Sea can only be achieved through local management measures, integrated on a European scale. These measures must address all continental life stages: glass eel (immigrating recruits), yellow eel (resident growth stage) and silver eel (emigrating spawners), with the specific objective of overall protection of the spawning stock. Individual river catchments have been identified as the primary management units for implementation of the Water Framework Directive. Whilst protective measures for eel must also be catchment-specific, a common approach and an equitable balance between countries are required. Joint development of targets and tools will provide a cost-effective and consistent approach to management of these widespread fish The aims of the proposed project are to develop quantitative approaches to evaluate the status of national eel stocks at a catchment level, to derive reference points for sustainability, and to model the potential effect of legal and technical measures aimed at stock recovery. These objectives will be achieved by bringing together modellers and data holders, culminating in a workshop to review the application of suitable models to real historical data sets, and to identify the technical components of a scientific approach to managing this resource.

Partners

• WAGENINGEN IMARES	The Netherlands
• INSTITUTE OF FRESHWATER RESEARCH, NATIONAL BOARD OF FISHERIES	Sweden
• INSTITUTION D'AMENAGEMENT DE LA VILAINE	France
• THE CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE	United Kingdom
• DEPARTMENT OF AGRICULTURE AND RURAL DEVELOPMENT FOR NORTHERN IRELAND	United Kingdom
• MARINE INSTITUTE	Ireland
• NATIONAL UNIVERSITY OF IRELAND, GALWAY	Ireland
• CEMAGREF, CENTRE NATIONAL DU MACHINISME AGRICOLE, DU GENIE RURAL, DES EAUX ET DES FORETS	France

UNCOVER: Understanding the mechanisms of stock recovery

Call number:	FP6-2004-SSP-4	*DG responsible:*	DG MARE
Contract number:	22717	*Total Project Cost:*	5.738.371,00
Contract type:	Specific Targeted Research Project	*EC Contribution:*	3.699.225,00
Starting Date:	01/03/2006	*Actionline:*	The modernisation and sustainability of fisheries policies
Duration (months):	48		
Project website:	http://www.uncover.eu	*Keyword:*	Fisheries / Management

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Presently, a number of exploited fish stocks in European waters are at historically low levels and in danger of collapse. For many of these stocks, management advice from ICES has been a closure of the fishery. In light of this situation, the purpose of UNCOVER is to develop recovery strategies for EU fish stocks which are outside of safe biological limits. In order to develop these recovery strategies, the principle objectives of UNCOVER are to 1) identify changes experienced during stock decline and their consequences for the prospects of stock recovery 2) enhance the understanding of mechanisms of fish stock recovery. 3) provide recommendations for the recovery of EU fish stocks, which are outside of safe biological limits. To fulfil these objectives, UNCOVER will, utilizing a multidisciplinary approach, synthesise and integrate relevant information from previous and ongoing research programs to evaluate and develop strategies for the rebuilding of stocks. Findings will identify changes experienced during stock decline as well as key processes impacting upon the potential for stock recovery. Results will be integrated into a modelling framework in order to evaluate and develop management strategies incorporating biological and environmental factors as well as technical and socioeconomic constraints. UNCOVER will investigate the failures and successes of previous stock recovery activities and will try to define optimal strategies for recovery plans for the future. Syntheses of these activities will result in the development of recommendations for rebuilding, as well as alternatives to existing recovery plans, if severe unforeseen problems in achieving their goals have been identified. Recovery strategies developed in UNCOVER will be area- and ecosystem-specific and tuned to key species and their fisheries in the Barents Sea, North Sea, Baltic Sea and Bay of Biscay.

Partners

• BUNDESFORSCHUNGSANSTALT FUR FISCHEREI	Germany
• HAVFORSKNINGSINSTITUTTET	Norway
• FISHERIES RESEARCH SERVICE	United Kingdom
• DANISH INSTITUTE FOR FISHERIES RESEARCH	Denmark
• WAGENINGEN IMARES	The Netherlands
• IFM-GEOMAR LEIBNIZ INSTITUT FUR MEERESWISSENSCHAFTEN	Germany
• KNIPOVICH POLAR RESEARCH INSTITUTE OF MARINE FISHERIES AND OCEANOGRAPHY	Russia
• INSTITUTE FOR FISHERIES MANAGEMENT AND COASTAL COMMUNITY DEVELOPMENT	Denmark
• THE CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE	United Kingdom
• INSTITUTO ESPANOL DE OCEANOGRAFIA	Spain
• INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	France
• UNIVERSITY OF PORTSMOUTH	United Kingdom
• MORSKI INSTYTUT RYBACKI	Poland
• DEPARTMENT OF CLINICAL MEDICINE, SECTION FOR NEUROLOGY, UNIVERSITY.OF BERGEN, NORWAY	Norway
• AZTI FUNDAZIOA	Spain
• THE UNIVERSITY COURT OF THE UNIVERSITY OF ABERDEEN	United Kingdom
• CENTER FOR MOLECULAR NEUROBIOLOGY, HAMBURG UNIVERSITY	Germany

WEALTH: Welfare and health in sustainable aquaculture

Call number:	FP6-2002-SSP-1	*DG responsible:*	DG MARE
Contract number:	501984	*Total Project Cost:*	5.494.157,00
Contract type:	Specific Targeted Research Project	*EC Contribution:*	2.538.000,00
Starting Date:	01/03/2004	*Actionline:*	The modernisation and sustainability of fisheries policies
Duration (months):	36		
Project website:	http://wealth.imr.no/	*Keyword:*	Aquaculture / Welfare

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It is generally believed that chronic stress, sub-optimal rearing conditions and stressful husbandry procedures lead to compromised immune function in fish, and may ultimately lead to outbreak of infectious diseases. However, there is limited knowledge on how stress affects the immune function, the mechanisms that are involved, and what level of stress that can be tolerated by the fish before the immune function and resistance to infectious diseases are negatively affected. Farmed fish are exposed to a range of potential stressful conditions e.g. related to water quality such as low oxygen, and high ammonia and CO_2 levels, often in combination with high fish stocking densities. However, the precise effects of these stressors are often not known for each species, which make it difficult to give advice on safe levels, and best practices.

The WEALTH project has been established to address these problems in Atlantic salmon and sea bass, involving 12 different European research laboratories and several fish farming companies. A range of experiments will be conducted in flow-trough tanks, recirculation tanks and sea cages to monitor impact of different stocking densities, husbandry practises, and water qualities. This covers two main approaches:

1) to identify limiting factors and husbandry practises with adverse negative effects on health and welfare by assessing behaviour, growth rate, feed conversion rate, fin damages and histopatological changes in various production systems, and to monitor the immune competence by challenging fish by virus or bacteria following long-term exposure to such conditions;

2) to monitor a range of physiological, immunological and molecular parameters following various chronic stress exposures to elucidate the links between physiological stress, immune function and resistance to diseases, in order to develop new prognostic tools, that in turn, can be used to monitor health and welfare in fish under different farming conditions.

The combined knowledge generated by these approaches will enable us to give better advices on Good Aquaculture Practises to ensure better welfare and health of farmed fish.

Partners

• HAVFORSKNINGSINSTITUTTET	Norway
• UNIVERSITY OF GOTEBORG	Sweden
• CENTRAL INSTITUTE FOR MARINE RESEARCH	Italy
• UNIVERSITEIT WAGENINGEN	The Netherlands
• THE CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE	United Kingdom
• FISHERIES RESEARCH SERVICE	United Kingdom
• INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	France
• INSTITUTE OF MARINE BIOLOGY OF CRETE	Greece
• NORGES VETERINAERHOGSKOLE	Norway
• MURCIA UNIVERSITY	Spain
• CENTRO DE BIOLOGIA MOLECULAR SEVERO OCHOA, CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS	Spain
• NATIONAL CENTRE FOR MARINE RESEARCH	Greece

POLICIES-1.4: New and more environment friendly production methods to improve animal health

List of projects

- PANDA
- RANA
- WOPER

PANDA: Permanent network to strengthen expertise on infectious diseases of aquaculture species and scientific advice to EU policy

Call number:	FP6-2002-SSP-1	*Total Project Cost:*	494.155,00
Contract number:	502329	*EC Contribution:*	494.155,00
Contract type:	Coordination action	*Actionline:*	New and more environment friendly production methods to improve animal health
Starting Date:	01/01/2004		
Duration (months):	38.0		
Project website:	http://www.europanda.net	*Keyword:*	Aquaculture / Disease
DG responsible:	DG RTD		

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The PANDA project aims to strengthen competencies through reinforcing and expanding the existing networks of the EC and National Reference Laboratories for aquatic animal diseases and link these to other research institutes and diagnostic laboratories in Europe and elsewhere, in order to establish an enlarged and permanent network of experts on a voluntary basis. In addition to enhancing exchange of knowledge, skills and scientific opinion in the area of aquatic animal health, a major purpose of the network will be to provide the EC with a comprehensive source of scientific information and advice on issues related to policy and legislation in this area within the EU. A project website will be established early in the work programme to disseminate information about the project, its objectives, progress and output. Experts in the different fields of aquatic animal health will be invited to submit their details to a database via the project website. The database of experts will provide the lead contractor for each work package with a target group for electronic discussion forums on matters prioritised by the steering group according to the current need for scientific information in support of EU policy as identified in the call for proposals. The network activities will focus on:

1) risk analysis of exotic emerging and re-emerging disease hazards,

2) an epidemiology database and methods for disease surveillance and containment,

3) evaluation of diagnostic methods and recommendations for standardisation and validation,

4) environmentally safe strategies for disease control, and

5) training needs and opportunities in research and diagnostics.

Findings emerging from the activity of the networks will be disseminated to all stakeholders by the steering group via the project website and will also be collated into the final report.

Recommendations will be made concerning the future maintenance of the permanent network established by the project.

Partners

• THE CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE	United Kingdom
• CENTRAAL INSTITUUT DIERZIEKTE CONTROLE LELYSTAD, PART OF DLO FOUNDATION	The Netherlands
• FEDERATION OF EUROPEAN AQUACULTURE PRODUCERS	Belgium
• DANISH INSTITUTE FOR FOOD AND VETERINARY RESEARCH	Denmark
• INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	France
• NATIONAL UNIVERSITY OF IRELAND, GALWAY	Ireland
• AGROTECHNOLOGY AND FOOD INNOVATIONS B.V	The Netherlands
• INSITITUT DE RECERCA I TECHNOLOGICA AGROALIMENTARES	Spain

RANA: Risk assessment of new and emerging systemic iridoviral diseases for European fish and aquatic ecosystems

Call number:	FP6-2003-SSP-3	*Total Project Cost:*	1.653.001,00
Contract number:	6459	*EC Contribution:*	1.185.999,00
Contract type:	Specific Targeted Research Project	*Actionline:*	New and more environment friendly production methods to improve animal health
Starting Date:	01/07/2005		
Duration (months):	38.0		
Project website:	http://www.ranavirus.net	*Keyword:*	Aquaculture / Disease
DG responsible:	DG RTD		

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The proposed project aims to assess the threat of systemic iridoviruses the ranaviruses- to farmed and wild freshwater fish and amphibian wildlife in the EU. A major element will be experimental infection trials on a range of important European species of farmed and wild freshwater fish and wild amphibians to provide data needed for the assessment. This will include major farmed food species but also representative farmed ornamental fish species that are increasingly being produced in Europe and have been suspected to be vectors of systemic iridoviruses. Several species of wild predator fish will be tested including European perch, which are highly susceptible to at least one exotic systemic iridovirus. Representative amphibian species will also be tested because wild populations appear to be seriously affected by systemic iridoviruses. Immunological diagnostic methods for the detection of systemic iridoviruses in tissues of naturally infected species will be developed to facilitate the characterization of the pathology and pathogenesis for each susceptible species and allow rapid diagnosis in the event of a future outbreak in EU. Molecular methods will be developed for the differentiation of systemic iridoviruses and thereby provide the means of differentiating the OIE notifiable and highly virulent isolates from the less potent isolates. Surveillance of disease in EU-produced and imported ornamental fish and pet or wild amphibians will be conducted to gain knowledge of the current presence of systemic iridoviruses and indicate the potential for the aquatic pet trade to be a route of introduction and spread. Applying epidemiological principles, a risk assessment model (RAM) will be developed to assess the potential pathways of spread and likely impact of those viruses showing greatest virulence in the experimental trials. Recommendations will be made to the Commission on future actions needed to prevent further incursion and spread of serious iridoviral diseases in the EU.

Partners

• MEGAPHARM GMBH	Denmark
• FINISH FOOD SAFETY AUTHORITY	Finland
• THE CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE	United Kingdom
• ISTITUTO ZOOPROFILATTICO SPERIMENTALE DELLE VENEZIE	Italy
• BUNDESFORSCHUNGSANSTALT FUR VIRUSKRANKHEITEN DER TIERE	Germany
• VETERINARY RESEARCH INSTITUTE	Czech Republic

WOPER: Workshop for the analysis of the impact of perkinsosis to the European Shellfish Industry

Call number:	FP6-2005-SSP-5A	*Total Project Cost:*	146.782,42
Contract number:	44442	*EC Contribution:*	82.795,00
Contract type:	Specific Support Action	*Actionline:*	New and more environment friendly production methods to improve animal health
Starting Date:	01/01/2007		
Duration (months):	12.0		
Project website:	http://www.cetmar.org/woper	*Keyword:*	Aquaculture / Disease
DG responsible:	DG RTD		

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Perkinsosis affects molluscs in the five continents, resulting in high mortality of some commercial species and huge economic impact. Some species of the genus Perkinsus (P. olseni and P. mediterraneus) are known to affect bivalve molluscs of the European coasts and other species (P. marinus and P. chesapeaki) are exotic to Europe. The goal of this project is to bring together industry, research community and administration in a 3 day workshop to address the threat of perkinsosis to European shellfish industry. The different aspects that have to be considered in the analysis of the disease and its implications for the shellfish industry will be distributed in 5 groups (the genus Perkinsus, epizootiology, host-pathogen interaction, effects on industry and control and fighting strategies), each of them representing a task and a session in the workshop. Preparation of the workshop will involve the production of a document for each task that will be the basis for discussion in the workshop. Special emphasis will be given in stimulating the involvement of European industry and regulators, and experts from other countries whose shellfish industries are deeply concerned by perkinsosis, such as USA, South Korea and Australia. Outcomes of the workshop will be state of the art knowledge, current and future research priorities and recommendations for industry and for policy-makers, all of which will be included in a specific publication to enhance its broad dissemination.

Partners

• CENTRO DE INVESTIGACIONES MARINAS	Spain
• CENTRO TECNOLOGICO DEL MAR-FUNDACION CETMAR	Spain
• INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	France
• ISTITUTO ZOOPROFILATTICO SPERIMENTALE DELLE VENEZIE	Italy
• ALGARVE UNIVERSITY (UNIVERSIDADE DO ALGARVE)	Portugal
• UNIVERSITE BRETAGNE OCCIDENTALE	France
• CENTRO DE BIOLOGIA MOLECULAR SEVERO OCHOA, CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS	Spain

Specific international cooperation activities

INCO-A

Traditional fishing boat - Morocco
© European Commission / Veronique Angot

INCO-A: Developing Countries

List of projects

- ASEM
- BOMOSA
- CENSOR
- ECOST
- INCOFISH
- MANGROVE
- PASARELAS
- PHILMINAQ
- SPEAR
- TRANSMAP

ASEM: ASEM Aquaculture Platform

Call number:	FP6-2002-INCO-DEV/SSA-1	*DG responsible:*	DG RTD
Contract number:	502505	*Total Project Cost:*	285.000,00
Contract type:	Special Support Action	*EC Contribution:*	285.000,00
Starting Date:	15/05/2004	*Actionline:*	Developing Countries
Duration (months):	24	*Keyword:*	Aquaculture / International Cooperation / Dissemination — Synthesis — Prospective
Project website:	http://www.asemaquaculture.org		

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The objective is to form a platform for activities related to sustainable aquaculture between EU and ASEM member countries through following activities (1) Build and manage the platform; (2) Thematic workshops; (3) Dissemination within & beyond the platform; (4) Facilitate partnerships & source funding for new projects. All activities will tend to three societal concerns: fair trade, food security and safety; environmental sustainability and social equitability. The platform will consist of a management committee, a steering committee and platform members. It will run for 24 months after which it will be sufficiently established in order to successfully introduce an 'Integrated Network' under the FP6. The project is relevant to important EU objectives such as 'Rational use of natural resources', 'Reconciling multiple demands on coastal zones', 'Food safety' and 'Aquatic farming systems'. Through its different stakeholders the platform aims to reconcile ecological and socioeconomic demands and introduce or consolidate concepts of sustainability in aquaculture development in both regions. It will contribute to aquatic food safety by providing sound research results, by creating a forum for experts and policy-makers, and by disseminating knowledge up to policy levels as well as down to farmers. Expected results: a smoothly operating network; a durable, long-term dialogue between the different stakeholders resulting in durable commitments (Codes of conduct, ...); workshops that extend a message among and beyond platform members (public opinion, political agendas, ...); a comprehensive database, freely accessible via an own homepage with information relevant to sustainable aquaculture in EU and ASEM; increased transfer of knowledge between different regions and stakeholders; closer linkage and increased efficiency of European and Asian aquaculture research; increased efficiency in fund raising and project proposal success.

Partners

- GENT UNIVERSITY — Belgium

BOMOSA: Integrating BOMOSA cage fish farming systems in reservoirs, ponds and temporary water bodies in Eastern Africa

Call number:	FP6-2004-INCO-DEV-3	*Total Project Cost:*	1.659.473,00
Contract number:	032103	*EC Contribution:*	1.499.998,60
Contract type:	Specific Targeted Research Project	*Actionline:*	Aquatic farming systems
Starting Date:	01/10/2006	*Keyword:*	Aquaculture / International Cooperation / Production Methods & Systems
Duration (months):	36		
Project website:	http://www.bomosa.org		
DG responsible:	DG RTD		

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The BOMOSA cage-based fish farming system is intended as a network of small-scale, locally-run operations whereby rural communities will set up and run the plots both during and after completion of the INCO-DEV research project. For that reason, the project science and technology objectives are also related to the fulfilment of locally and regionally defined socioeconomic targets (such as demands and preferences, integration with existing farming and other economic activities, and the ethics and roles of women) rather than purely concerned with achieving fish productivity targets. Three eastern African countries (Ethiopia, Kenya, and Uganda) share common problems in sustainable management of sensitive and dynamic ecosystems. These countries also face deficits in the supply of high-protein food and an ongoing battle to alleviate rural poverty. The BOMOSA scheme uses an existing fish farm ('hub') to supply fingerlings (mainly Nile Tilapia at approximately 25g) for rearing within suitable water bodies such as reservoirs, ponds, and naturally occurring temporary water bodies formed during the rainy season. Farmers will be trained to rear the fish in cages in their 'plots', harvest them for fresh consumption, sell the fish locally, or process them for long-term keeping i.e. drying, smoking, and packaging. The fish will be a high-protein dietary supplement and/or an additional source of income for subsistence farmers.

The first activity of the project will be to apply a participatory approach to define targets in terms of economic viability and social acceptability at community levels for the new Bomosa plots. After this preparatory work, the next step is to develop and validate an evaluation method using remote sensing to assess and characterise water bodies for use as potential Bomosa plots. This information will then be used to set up several plots and optimise the technology for small water bodies within four eco-zones across Ethiopia, Kenya, and Uganda. Besides arranging the plots, a task group will evaluate the locally available agricultural by-products and cost-effective processing technologies as a resource for sustainable production of low-protein fish feed. A main point of the project will be to determine requirements and make recommendations for a legal and regulatory framework based on potential veterinary, public health, and environmental impacts of BOMOSA. Another major outcome

of the project is to develop capacity-building and dissemination material for the local community, relevant authorities, policy-makers, and the international scientific community. In addition, the project will develop a socioeconomic model for sustainable introduction and widespread uptake of the BOMOSA scheme in eastern Africa. Expect ed resu lts and outc omes The BOMOSA system will be further developed and optimised for use in four eco-zones within Ethiopia, Kenya, and Uganda within the current INCO-DEV research project. As a result, 14 Bomosa plots will be set up for research and validation, each served from hubs (fish hatcheries) within each country. Furthermore, the fisheries management authorities will initiate the establishment of an institutional framework. Each of the plots will have its own plot committee to ensure relevance in improving local socioeconomic conditions through early empowerment of local stakeholders. The lessons learnt, best practices, physical and socioeconomic potential, risks, and prerequisites for widespread uptake of the BOMOSA scheme will be analysed in detail and presented at the Bomosa International Conference as the dissemination highlight of the BOMOSA project.

Partners

• BOKU — UNIVERSITAT FUR BODENKULTUR WIEN	Austria
• UNIVERSITY OF BOLOGNA	Italy
• MOI UNIVERSITY	Kenya
• ETHIOPIAN INSTITUTE OF AGRICULTURAL RESEARCH	Ethiopia
• KENYAN MINISTRY OF LIVESTOCK AND FISHERIES DEVELOPMENT	Kenya
• MINISTRY OF AGRICULTURE, ANIMAL INDUSTRY AND FISHERIES	Uganda
• ENKI, O.P.S.	Czech Republic
• KENYA MARINE AND FISHERIES RESEARCH INSTITUTE	Kenya
• AUSTRIAN ACADEMY OF SCIENCES	Austria
• EGERTON UNIVERSITY	Kenya

CENSOR: Climate variability and El Niño Southern Oscillation: Implications for natural coastal Resources and management

Call number:	FP6-2002-INCO-DEV-1	*Total Project Cost:*	3.828.067,00
Contract number:	511071	*EC Contribution:*	3.000.000,00
Contract type:	Specific Targeted Research Project	*Actionline:*	Reconciling multiple demands on costal zones
Starting Date:	01/10/2004		
Duration (months):	48	*Keyword:*	Marine Environment / InternationalCooperation / Fisheries / Interaction with Environment
Project website:	http://www.censor.name		
DG responsible:	DG RTD		

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Along the Chilean-Peruvian coast of the Humboldt Current upwelling system, the sustained exploitation of marine resources within their ecosystem context, surface runoff, infrastructure and socioeconomics are significantly influenced by the ENSO (El Niño-Southern Oscillation) climate oscillation, which affects both aquatic and terrestrial ecosystems. The warm phase, El Niño (EN), has drastic effects on marine and terrestrial biota, as well as on artisanal fisheries. However, both EN and the cold phase, La Niña (LN), also produce positive effects, which are not used by local fishermen and human communities to their full advantage. The CENSOR project aims to enhance the detection, compilation and understanding of EN and LN effects on coastal environments and resources to mitigate damage and better utilise beneficial effects.

Censor will implement a multidisciplinary approach aimed at creating a comprehensive picture of the structure and response of the Chilean-Peruvian coastal system to ENSO. Studies on benthic communities, pelago-benthic exchange processes, the effects of increased rainfall in coastal systems, and resource variability under EN and LN conditions will be compiled and analysed comparatively. Information accumulated on changes in marine fauna and flora due to climate variability will enhance the understanding of how ecosystems function and the processes steering life cycles, species interactions, and genetics. The project will support the comprehension of eco-physiological tolerance limits of upwelling species to explain shifts in resource availability and abundance, with the goal of improving fishery management and resource prediction. Biological indicators will be identified to predict and validate EN events. Aquacultural demands will be addressed to compensate EN effects and decrease EN dependence. Data on increased surface runoff, river discharge associated with EN events, and their resulting effects will be integrated and analysed on the land. The economic and socioeconomic consequences of all these changes, both in the terrestrial and marine realm, will be studied. All compilations and results of the Censor project will be integrated into a

public database and made available to the managers of the coastal zone and its resources, as well as to the scientific community and the public.

As a consequence of these activities, Censor will improve the general understanding of coastal ecosystems subject to ENSO, and will compile and disseminate this information, effectively creating a scientifically validated information exchange platform between various actors in the coastal realm. It is expected that this approach will raise the social awareness of resource management and environmental policy and will contribute to social and socioeconomic stability. Increasing the public awareness has the potential to enhance sustainable livelihood strategies of human coastal populations facing the Humboldt Current upwelling system.

Partners

• NATIONAL OCEANOGRAPHY CENTRE	United Kingdom
• CENTER OF OCEANOGRAPHY FOR THE EASTERN SOUTH PACIFIC	Chile
• UNIVERSIDAD DE ANTOFAGASTA	Chile
• UNIVERSIDAD ARTURO PRAT	Chile
• CENTRO AUSTRAL DE INVESTIGACIONES CIENTIFICAS (CONICET)	Argentina
• UNIVERSIDAD NACIONAL DEL MAR DEL PLATA	Argentina
• INSTITUTO DEL MAR DEL PERU	Peru
• ZENTRUM FUR MARINE TROPENOKOLOGIE	Germany
• GEOFORSCHUNGSZENTRUM POTSDAM	Germany
• UNIVERSIDAD NACIONAL MAYOR DE SAN MARCOS	Peru
• UNIVERSIDAD NACIONAL AGRARIA LA MOLINA	Peru
• INSTITUT DE RECHERCHE POUR LE DEVELOPPEMENT	France
• CENTRO DE BIOLOGIA MOLECULAR SEVERO OCHOA, CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS	Spain

ECOST: Ecosystems, Societies, Consilience, Precautionary principle: Development of an assessment method of the societal cost for best fishing practices and efficient public policies

Call number:	FP6-2002-INCO-DEV-1	*Total Project Cost:*	3.764.429,00
Contract number:	003711	*EC Contribution:*	3.100.000,00
Contract type:	Specific Targeted Research Project	*Actionline:*	Reconciling multiple demands on costal zones
Starting Date:	01/01/2005		
Duration (months):	48	*Keyword:*	Fisheries / International Cooperation / Management
Project website:	http://www.ecostproject.org		
DG responsible:	DG RTD		

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The main aim of the ECOST project is to develop a new approach to assess the societal cost of fishing activities and fishing policies. By societal cost we mean all costs linked to fishing activities: these may be ecological (alteration of the capacity of a system), economic (all costs linked to production, management, subsidies and external factors), social (linked to choices made in public policy, food security and safety, provision for national or international markets, the eradication of poverty and to development models (small scale fishing versus industrial fishing).

The project has to be seen from the wider perspective of equipping public decision-makers and society with the appropriate tools and methods needed to take into account, not only immediate economic and social profits, but also the costs engendered by fishing activities which relate as much to ecosystems as to societies.

Work is spread over three continents (three countries for each continent) that are characterised respectively by ecosystems of coastal upwelling (West Africa), delta (Southeast Asia) and coral reef (Caribbean). Within each region/ecosystem (eco-region) several fisheries have been selected as representative of global fishing activities. Furthermore, a marine protected area will be chosen in order to carry out comparative analysis within the said eco-region, and to serve as a reference point. There is a triple advantage to such a choice: firstly, it will facilitate the comparison of the different ecosystems; secondly, it will facilitate the comparison of fishing methods and management (public policy); and thirdly, it will facilitate the comparison of societies based on the choices they have made and their concerns regarding various marine resources. The main body of work will therefore focus on the development of a model that addresses the societal cost of fishing activities, which can reflect the reality of such varied and contrasting coastal regions as perceived via their ecosystems and societies.

At the heart of the project will be the triple theme of 'marine environment - fishing activities - civil society' thus bringing together the life sciences and the social sciences. The multi-disciplinary nature of the project is centred on the concept of consilience in order to gain a better understanding of situations that require the diverse expertise.

Partners

• UNIVERSITY OF PORTSMOUTH	United Kingdom
• LABORATORY OF MOLECULAR MEDICINE, COLLEGE OF LIFE SCIENCES, SUN YATSEN UNIVERSITY, GUANGZHOU, CHINA	China
• INSTITUTO TECNOLOGICO DE SANTO DOMINGO AND EL EQUIPO DE INVESTIGACION SOCIAL (EQUIS/INTEC)	Dominican Republic
• THE UNIVERSITY OF THE WEST INDIES (MONA CAMPUS)	Jamaica
• THE NORTH SEA CENTRE	Denmark
• CENTRE NATIONAL DES SCIENCES HALIEUTIQUES DE BOUSSOURA	Guinea
• NATIONAL RESEARCH AND STUDIES INSTITUTE	Guinea-bissau
• CENTRO DI INGEGNERIA ECONOMICA SOCIALE	Italy
• INSTITUT NATIONAL POLYTECHNIQUE DE TOULOUSE	France
• AMSTERDAM SCHOOL FOR SOCIAL SCIENCE RESEARCH/UNIVERSITEIT VAN AMSTERDAM	The Netherlands
• KASETSART UNIVERSITY	Thailand
• UNIVERSITE DE PERPIGNAN	France
• SCHOOL OF VETERINARY MEDICINE, FACULTY OF MEDICAL SCIENCES, THE UNIVERSITY OF THE WEST INDIES. ST. AUGUSTINE, TRINIDAD AND TOBAGO	Trinidad and Tobago
• INSTITUT DE RECHERCHE POUR LE DEVELOPPEMENT	France
• CENTRE DE RECHERCHE OCEANOGRAPHIQUE DE DAKAR THIAROYE	Senegal
• CAN THO UNIVERSITY	Vietnam
• CATHOLIC UNIVERSITY OF LEUVEN	Belgium

INCOFISH: Integrating Multiple Demands on Coastal Zones with Emphasis on Aquatic Ecosystems and Fisheries

Call number:	FP6-2002-INCO-DEV-1	*Total Project Cost:*	5.387.172,00
Contract number:	003739	*EC Contribution:*	4.899.480,00
Contract type:	Specific Targeted Research Project	*Actionline:*	Rational use of natural resources
Starting Date:	01/05/2005	*Keyword:*	Marine Environment / International Cooperation / Fisheries / Aquaculture / Costal Zone
Duration (months):	36		
Project website:	http://www.incofish.org		
DG responsible:	DG RTD		

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INCOFISH conducted specifically targeted strategic research towards reconciling multiple demands on coastal zones. It evaluated and integrated data, tools and concepts suitable to contribute to achieving the goals set by the World Summit on Sustainable Development in Johannesburg, such as restoring healthy fish stocks and ecosystems by 2015.

INCOFISH research activities were focusing on the following Integrated Coastal Zone Management (ICZM) issues:

(i) document historical performance of ecosystems to deal with the 'shifting baselines' syndrome and provide sound reference points for resource restoration; (ii) provide electronic maps for all coastal species to establish authoritative species inventories and explore scenarios of global change and invasive species; (iii) create spatial ecosystem models for selected coastal ecosystems as a basis for understanding the resource; (iv) provide guidelines and tools for best sizing and placement of marine protected areas; (v) research impact of ecotourism on coastal ecosystem and provide best-practice guidelines; (vi) identify suitable simple indicators to promote and monitor sustainable fisheries; (vii) provide valuation of coastal ecosystem products and services and of different management regimes; (viii) review legal instruments for sustainable fishing in coastal zones; (ix) revisit coastal transects as a tool for structuring and understanding multiple demands on coastal zones; and (x) provide an archive and web portal for easy public access to all data and tools relevant for ICZM.

Combining an accommodating style of coordination with strong leadership ensured that the components of INCOFISH described below came together and formed a comprehensive and powerful package with the potential to improve integrated coastal zone management. To provide for maximum synergy between work packages, all tools and concepts resulting from INCOFISH research were tested in real-world scenarios in selected coastal systems worldwide. All data and tools are freely available online at *www.incofish.org*.

INCOFISH achievements were presented at international meetings and at numerous occasions in the media, see www.incofish.org/News/IncoMed.php.

Partners

• IFM-GEOMAR LEIBNIZ INSTITUT FUR MEERESWISSENSCHAFTEN	Germany
• ESTONIAN MARINE INSTITUTE, UNIVERSITY OF TARTU	Estonia
• INSTITUTO DEL MAR DEL PERU	Peru
• INSTITUTO OCEANOGRAFICO DA UNIVERSIDADE DE SAO PAULO	Brazil
• ACOES PARA PRESERVACAO DOS RECURSOS NATURAIS E DESENVOLVIMENTO ECONOMICO RACIONAL	Brazil
• INSTITUTO DE PESCA (APTA/SAA/SP)	Brazil
• EMPRESA DE CONSULTORIA E INVERSIONES CABAL, S.A.	Nicaragua
• CHARLES DARWIN FOUNDATION FOR THE GALAPAGOS ISLANDS	Ecuador
• CENTRO INTERDISCIPLINARIO DE CIENCIAS MARINAS DEL INSTITUTO POLITECNICO NACIONAL	Mexico
• CENTRO DE REFERENCIA EM INFORMACAO AMBIENTAL — CRIA	Brazil
• DIRECCION NACIONAL DE RECURSOS ACUATICOS	Uruguay
• FISHBASE INFORMATION & RESEARCH GROUP, INC.	Philippines
• INTERNATIONAL GOVERNANCE SOLUTIONS LTD.	United Kingdom
• PRIMEX-FAME (FOUNDATION FOR ALTERNATIVE MANAGEMENT OF THE ENVIRONMENT), INC.	Philippines
• FUNDACION MALPELO Y OTROS ECOSYSTEMAS MARINOS	Colombia
• UNIVERSIDAD NACIONAL DE COLOMBIA	Colombia
• UNIVERSIDAD SAN FRANCISCO DE QUITO	Ecuador
• KENYA SEA TURTLE CONSERVATION COMMITTEE	Kenya
• EAST CHINA NORMAL UNIVERSITY	China
• COASTAL DEVELOPMENT CENTRE	Thailand
• MARINE AND COASTAL MANAGEMENT BRANCH OF ENVIRONMENTAL AFFAIRS AND TOURISM	South Africa
• NANJING INSTITUTE OF ENVIRONMENTAL SCIENCES OF SEPA (STATE ENVIRONMENTAL PROTECTION ADMINISTRATION)	China
• THE CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE	United Kingdom
• NATURHISTORISKA RIKSMUSEET	Sweden
• CENTRE FOR APPLIED GENSENSORIK AT THE UNIVERSITY OF BREMEN	Germany
• UNIVERSIDAD DE CONCEPCION	Chile
• THE UNIVERSITY OF HULL	United Kingdom
• UNIVERSITY OF NAMIBIA	Namibia
• THE UNIVERSITY OF NEWCASTLE	United Kingdom
• INSTITUTE OF BIOLOGY UNIVERSITY OF SOUTHERN DENMARK	Denmark
• DEPT. OF GENERAL PSYCHOLOGY — UNIVERSITY OF PADOVA	Italy
• PRINCE OF SONGKLA UNIVERSITY	Thailand
• UNIVERSITY OF THE WESTERN CAPE	South Africa
• NORWEGIAN COLLEGE OF FISHERIES SCIENCE, UNIVERSITY OF TROMSO	Norway
• CENTRE DE RECHERCHE OCEANOGRAPHIQUE DE DAKAR THIAROYE	Senegal
• THE UNIVERSITY COURT OF THE UNIVERSITY OF ABERDEEN	United Kingdom
• ROSKILDE UNIVERSITET	Denmark

MANGROVE: Mangrove ecosystems, communities and conflict: developing knowledge-based approaches to reconcile multiple demands

Call number:	FP6-2002-INCO-DEV-1	*DG responsible:*	DG RTD
Contract number:	3697	*Total Project Cost:*	959.740,00
Contract type:	Specific Targeted Research Project	*EC Contribution:*	850.000,00
Starting Date:	01/08/2005	*Actionline:*	Rational use of natural resources
Duration (months):	42	*Keyword:*	Marine Environment / International Cooperation / Fisheries / Aquaculture / Costal Zone
Project website:	http://www.enaca.org/modules/mangrove		

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Urbanisation and development in SE Asia is occurring rapidly along coastal zones. Such coastal areas are important food production centres, which are central to the livelihoods of many poor people. Until recently the benefits of mangroves were generally not appreciated and undervalued. Major constraints to informed policy and management of mangrove ecosystems in Asia are the lack of relevant information on the value stakeholders ascribe to such systems and the absence of a balanced assessment of ecosystem functioning, livelihoods and multiple uses. Moreover, mangrove ecosystem management requires scientists, planners and policy makers to deal with changing and often conflicting demands whilst attempting to meet the challenge of fulfilling the basic needs of local communities. Considering the many important resources and functions that mangrove ecosystems provide and the support afforded to poor coastal livelihoods, this project will address the lack of knowledge about their status, use and requirements for sustainable management. An improved understanding of the multiple uses of mangrove ecosystems in employment generation, asset creation, food provision and sustaining the provision of societal support functions is required.

This project aims to develop action plans to reconcile multiple demands placed on mangroves and adjacent coastal zones in Southeast Asia; local and national level stakeholders will participate in action planning, ensuring widespread support and increasing the likelihood of implementation. New knowledge concerning the most effective approaches to action planning involving coastal communities and national institutions will be communicated to agencies responsible for coastal zone management and planning, to assist in developing codes of practice and policies that acknowledge and aim to reconcile the multiple demands placed on mangroves and adjacent coastal zones.

Initially a detailed situation analysis, involving participatory community appraisals, stakeholder and institutional analysis, a study of the market networks for goods derived from mangroves and an assessment of existing datasets was undertaken. Ecological characteristics, structure, processes and functions of mangroves, and adjacent coastal areas are being

assessed, enabling methods and indicators for participatory monitoring to be developed. Livelihood strategies of households dependent on goods and services derived from mangroves are being monitored to identify conflicts and tensions between and within livelihoods. A detailed institutional analysis involving local, national & international organisations is characterising existing policy and legislation relating to mangroves; the changing status of mangroves and values stakeholders associate with them is also being assessed. These activities are being followed by the formulation, in collaboration with stakeholders, especially local communities and representatives from national scale institutions, of Action Plans designed to reconcile multiple demands (RMD). The impacts of implementing these action plans on the mangrove ecosystem, adjacent coastal areas, producers, consumers and institutions involved will then be monitored and evaluated. New knowledge from the project will contribute to a better understanding of the value of mangrove ecosystems to poor communities and help guide other communities and national scale institutions in developing action plans to reconcile multiple demands placed on mangroves and associated coastal zones.

Community participation is being encouraged to ensure that new knowledge is accessible for collective decision-making and development of policies for the equitable use of coastal zones, especially mangroves.

High potential strategies are being identified and guidelines and policy brief materials developed to promote uptake and policy development. All findings and conclusions are being disseminated through appropriate communication media, project reports and bulletins in local languages, scientific papers, guidelines and policy briefs. This project will lead to improvements in the reconciliation of multiple demands placed on mangroves and adjacent coastal zones in Southeast Asia.

Partners

• THE UNIVERSITY OF ESSEX	United Kingdom
• UNIVERSITEIT WAGENINGEN	The Netherlands
• INSTITUT DU DEVELOPPEMENT DURABLE ET DES RESSOURCES AQUATIQUES	France
• MULAWARMAN UNIVERSITY	Indonesia
• NETWORK OF AQUACULTURE CENTRES IN ASIA-PACIFIC	Thailand
• STOCKHOLM ENVIRONMENT INSTITUTE	Sweden
• KASETSART UNIVERSITY	Thailand
• CENTRE FOR NATURAL RESOURCES AND ENVIRONMENTAL STUDIES / VIETNAM NATIONAL UNIVERSITY	Vietnam

PASARELAS: Discovery Modelling Mediation Deliberation: Interface Tools for Multi-stakeholder Knowledge Partnerships for the Sustainable Management of Marine Resources and Coastal Zones

Call number:	FP6-2002-INCO-DEV/SSA-1	*Total Project Cost:*	312.700,00
Contract number:	12054	*EC Contribution:*	280.000,00
Contract type:	Specific Support Action	*Actionline:*	Reconciling multiple demands on costal zones
Starting Date:	01/01/2005		
Duration (months):	24	*Keyword:*	Fisheries / International Cooperation / Dissemination — Synthesis — Prospective
Project website:	http://www.c3ed.uvsq.fr/pasarelas		
DG responsible:	DG RTD		

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Policies to encourage research, knowledge exchange and science applications for sustainable development must address urgent social needs and also complex and difficult issues where knowledge is incomplete, values are in dispute and stakes are high. The traditional conception of a largely oneway traffic of information from the experts to the public (and from developed countries to the developing ones, etc.) is being replaced by a more reciprocal partnership among those involved in the process. Such partnership necessarily is constructed through close dialogue and co-operation of scientists and technical experts with policy makers, implementers and stakeholders, including full participation by experts with local knowledge in developing countries. This cannot happen by a cloistered approach to science and technology. Partnership for capacity building must respect the environmental and social circumstances of the host societies, and the variety and tensions within these societies. People in all places and all walks of life have expertise in a range of practical matters. Mobilising knowledge for sustainable development therefore requires attention to the forms of knowledge sharing. The goal overall of the PASARELAS Project was to contribute to development of a North-South capacity for the production, deployment and exchange of research and communication tools at the 'interfaces' of different sectors of society in the field of environmental governance and sustainable development. With close reference to the concomitant INCO-DEV projects 'ECOST', 'INCOFISH' and 'CENSOR', the consortium allied multi-stakeholder participatory approaches with the possibilities of the new multimedia information and visualisation technologies for the development of 'mediation' or dialogue tools that encourage engagement of individuals and groups as 'stakeholders' in environmental policy, management and governance processes for coastal zones, marine protected areas and associated fisheries resources.

Learning about environmental governance challenges was promoted through participation in procedures (real or simulated) of selection and deployment of indicator systems (e.g. computer supported visualisation of scenarios and territories, and multi-criteria evaluation

of alternative scenarios for land use, for ecosystem protection and management, for fisheries regulation and marketing, etc.). The multimedia tools and participation processes were demonstrated through exploitation of data, models and institutional knowledge from ongoing INCO-DEV research projects, engaging policy authorities, territorial administrations, higher education, private sector interests (e.g., fisheries, tourism, coastal zone agriculture), with outreach perspectives to civil society in its various forms. Documentation was produced using on-line resources, CDrom, printed documents, and popular media (posters, video presentations, etc.). An important goal was to define in technical and legal terms, the basis for a permanent education-training-outreach programme including pedagogic materials (1) disseminated as free web-based interfaces, (2) as products to be made available through 'public good' exploitation agreements for teaching and learning contexts including schools, universities and territorial administrations, (3) as basis for professional services useful to research institutions, companies, community networks and regulatory agencies.

To this effect, four major events were convened bringing together partners in the PASARELAS project, the other INCO-DEV projects and stakeholders from within the different regions. These took place in July 2005 in Corsica (France), in March 2006 in Dakar (Senegal), in September 2006 in Concepción (Chile) and finally in March 2007 in Venice (Italy).

The results are knowledge products and their dissemination useful for the understanding of coastal systems and supporting policy formulation on priorities set by bi-regional dialogue between Europe, Africa, Caribbean and the Pacific, Asia and Latin America and encouraging new avenues of coastal zone management in following up on the orientation of the World Summit for Sustainable Development.

Instead of generating stand-alone products, much of the conceptual work and learning enabled by the PASARELAS project has been embedded in other projects and printed and online deliberation support software.

Partners

• UNIVERSITE DE VERSAILLES SAINT QUENTIN EN YVELINES	France
• NATIONAL UNIVERSITY OF SINGAPORE	Singapore
• EAST CHINA NORMAL UNIVERSITY	China
• SOCIETY FOR RESEARCH & INITIATIVES FOR SUSTAINABLE TECHNOLOGIES & INSTITUTIONS	India
• SERI — NACHHALTIGKEITSFORSCHUNGS UND -KOMMUNIKATIONS GMBH	Austria
• INSTITUT FUR MEERESKUNDE	Germany
• FEEM SERVIZI S.R.L.	Italy
• ALFRED WEGENER INSTITUTE FOR POLAR AND MARINE RESEARCH	Germany
• UNIVERSITY OF PORTSMOUTH	United Kingdom
• POLICY STUDIES INSTITUTE	United Kingdom
• BIJVOET CENTER FOR BIOMOLECULAR RESEARCH, DEPT. CHEMISTRY, UTRECHT UNIVERSITY	The Netherlands
• UNIVERSITE CHEIKH ANTA DIOP	Senegal
• THE UNIVERSITY OF DUNDEE	United Kingdom
• UNIVERSITY OF NAMIBIA	Namibia
• CRANFIELD UNIVERSITY	United Kingdom
• UNIVERSIDAD NACIONAL AGRARIA LA MOLINA	Peru
• INSTITUT DE RECHERCHE POUR LE DEVELOPPEMENT	France
• UNIVERSIDAD AUTONOMA DE BARCELONA	Spain
• DIPARTIMENTO DI BIOCHIMICA BIOFISICA E CHIMICA DELLE MACROMOLECOLE, UNIVERSITÀ DEGLI STUDI DI TRIESTE	Italy

PHILMINAQ: Mitigating impact from aquaculture in the Philippine

Call number:	FP6-2002-INCO-DEV/SSA-1	*Total Project Cost:*	299.081,00
Contract number:	031640	*EC Contribution:*	299.081,00
Contract type:	Specific Support Action	*Actionline:*	Aquatic farming systems
Starting Date:	15/08/2006	*Keyword:*	Aquaculture / International Cooperation / Interaction with Environment
Duration (months):	18		
Project website:	http://www.philminaq.eu/		
DG responsible:	DG RTD		

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Agriculture and fisheries in the Philippines directly account for about a fifth of the total economy and directly and indirectly (which considers the backward and forward linkages, or the cluster universe) three fifths of the economy. More importantly, it directly employs about 10 million people, nearly 40 % of the labour force. Agriculture-based communities are host to most of the poor in the country. The freshwater, brackish water and marine resources in the Philippines are ideally suited to the development of aquaculture and production has been developing rapidly. However, together with the increase in production from aquaculture, there is the risk of impact on the environment. Effective monitoring and control of aquaculture by the Philippine Authorities will allow controlled development of sustainable production. The main objective of the Specific Support Action (SSA) is to enhance the Philippine Government's capabilities in the monitoring, control and enforcement of aquaculture in a sustainable manner within the guidelines of the FAO Code of Conduct for Responsible Fisheries. The Code includes an article with broad principles for Aquaculture Development, which is intended to assist governments in their ambition to promote the development of a safe and responsible national fisheries and aquaculture sector. The environmental sustainability of aquaculture needs to address the actual and potential adverse environmental effects on resources used in aquaculture, in particular, water, fry and farmed stock. In addition it needs to address the adverse effects of increasing aquatic pollution and habitat degradation, certain types of aquaculture practices and production and the related consequences on supply of fish as an affordable food commodity. The project will explore implementing the code to develop sustainable aquaculture considering issues of poverty alleviation, livelihood development, community development, protection of the environment and food safety.

Partners

• AKVAPLAN-NIVA	Norway
• BUREAU OF FISHERIES AND AQUATIC RESOURCES, INLAND FISHERIES AND AQUACULTURE DIVISION	Philippines
• MARINE ENVIRONMENT AND RESOURCES FOUNDATION INC	Philippines
• SCOTTISH ASSOCIATION FOR MARINE SCIENCE	United Kingdom

SPEAR: Sustainable options for PEople, catchment and Aquatic Resources

Call number:	FP6-2002-INCO-DEV-1	*Total Project Cost:*	2.090.075,39
Contract number:	510706	*EC Contribution:*	1.500.000,00
Contract type:	Specific Targeted Research Project	*Actionline:*	Reconciling multiple demands on costal zones
Starting Date:	1/12/2004		
Duration (months):	40	*Keyword:*	Aquaculture / International Cooperation / Interaction with Environment
Project website:	http://www.biaoqiang.org		
DG responsible:	DG RTD		

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SPEAR aimed to develop and test an integrated framework for interpreting coastal zone structure and dynamics in areas where communities primarily depend on marine resources. This framework accounts for watershed interactions, ecological structure and human activities and was developed using two case-study systems in China. This interdisciplinary approach combined natural and social sciences and addressed the complex scaling issues inherent in integrated management. The objectives were:

1. To develop an integrated framework that simulates the dynamics of the coastal zone accounting for basin effects (exchanges of water, sediments and nutrients), ecological structure and human activities.

2. To test this framework using detailed research models, which assimilate dispersed local and regional data, and to develop screening models which integrate key processes and interactions.

3. To examine ways of internalising environmental costs and recommend response options such as optimisation of species composition and distributions, thereby restoring ecological sustainability.

4. To evaluate the full economic costs and benefits of alternative management strategies, and societal consequences. Three strategies were examined: business as usual, increased economic exploitation and ecological sustainability.

5. To provide managers with quantitative descriptors of environmental health, including simple screening models, as practical diagnostic tools, innovatively combining local and regional datasets.

Two contrasting systems in China were studied: Sanggou Bay, part of a rural watershed already investigated in a previous INCO project, and Huangdun Bay, located in an industrial-

ised area south of Shanghai. In both systems, large-scale cultivation of seaweeds, shellfish and finfish are of paramount importance for community income and livelihood.

Research and development used existing local and regional datasets, ongoing Chinese field programmes, archived and contemporary satellite imagery, with limited additional field and experimental measurements. Complementary workpackages established the interactions between catchment use and coastal zone. Work focused on fluxes of nutrients, organic matter and sediments, including exchanges at the seaward boundary and the role of ecological processes. Component models were used to describe the interactions both between cultivated species and with their environments, taking into account different levels of human interaction (e.g. resource exploitation, basin water management practices, and sewage discharge). Integrated modelling permitted the dynamic coupling of economic drivers responsible for social issues (overexploitation, usage conflicts) with ecological models, resolving interrelations with the natural system. This allowed realistic testing of contrasting management scenarios. Particular emphasis was placed on how integrated multi-species aquaculture (IMTA) may be used to restore and optimise sustainability by internalising environmental costs.

Datasets and research models were used to conceptualise, parameterise and test screening models, which distil the knowledge obtained from the integrated system analysis into simple and practical diagnostic tools in support of management for sustainability. Model validation and strengthening of technological capacity was ensured through stakeholder involvement in the project, including in experimental manipulation of IMTA at culture unit test sites, and through training of young Chinese scientists, both through technical courses and postgraduate research.

The SPEAR consortium provided a conceptual framework for integrated interpretation of coastal zone structure and dynamics by means of a holistic approach to coastal system research, combining disciplines, techniques and systems through the meaningful integration of patterns and processes with widely varying scales. This facilitated a new, system-based understanding of the functioning of coastal zones.

The research models describe interactions among cultivated species and between them and their environments, including both natural coupling and various levels of human interaction. The latter include resource exploitation and other, potentially conflicting, uses such as water management practices in the river basin, sewage discharge or coastline modifications such as landfills.

The socio-economic component of the project permitted the coupling of economic drivers that are responsible for social issues (overexploitation, usage conflicts, and increasing demand) thus allowing realistic testing of different management scenarios. SPEAR quantified the sensitivity of environmental changes on aquaculture production, thereby providing the rationale for minimising environmental stressors and impacts of changing demand on its sustainability.

Partners

• IMAR — INSTITUTO DO MAR	Portugal
• UNIVERSITY OF GOTEBORG	Sweden
• FIRST INSTITUTE OF OCEANOGRAPHY-STATE OCEANIC ADMINISTRATION	China
• THIRD INSTITUTE OF OCEANOGRAPHY	China
• NINGBO UNIVERSITY	China
• PLYMOUTH MARINE LABORATORY	United Kingdom
• STICHTING WATERLOOPKUNDIG LABORATORIUM	The Netherlands
• THE UNIVERSITY OF STIRLING	United Kingdom
• COUNCIL FOR SCIENTIFIC AND INDUSTRIAL RESEARCH	South Africa

TRANSMAP: Transboundary networks of marine protected areas for integrated conservation and sustainable development: biophysical, socioeconomic and governance assessment in East Africa

Call number:	FP6-2002-INCO-DEV-1	*Total Project Cost:*	1.832.058,00
Contract number:	510862	*EC Contribution:*	1.700.000,00
Contract type:	Specific Targeted Research Project	*Actionline:*	Reconciling multiple demands on costal zones
Starting Date:	01/01/2005		
Duration (months):	42	*Keyword:*	Fisheries / International Cooperation / MPA's
Project website:	http://www.transmap.fc.ul.pt		
DG responsible:	DG RTD		

Coordinator Prof. Paula José
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The goal of the TRANSMAP project is to develop scientific knowledge for the creation of transboundary networks of MPAs in the East African region, in particular relating to type, size and location of reserves, which together can maintain ecological functions, resource-uses and future socioeconomic developments. The final outcomes are options for zoning plans for two contrasting situations, which encompass a significant fraction of the biogeographical range of the region. To achieve this, key issues will be addressed through the following specific research objectives: (1) to gather and synthesise existing knowledge and databases; (2) to map habitat types and coastal land- and sea-uses; (3) to assess the fundamental biophysical data, namely the biodiversity evaluation through innovative approaches, and including an assessment of species and habitats important for conservation reasons; (4) to evaluate the sources of human income, especially those derived from natural resources, current socioeconomic needs and traditional framework, integrating the economic dimension in a multi-criteria analysis; (5) to assess the institutional, legal and policy frameworks for decision-making, operational assessment and state of management; (6) to develop options for zoning plans for each case study area that integrate the results of the biophysical and socioeconomic assessments and are innovatively adapted to accommodate the local, regional and governance frameworks. The research in this proposal will enhance the possibility of the use of an ecosystem-based approach to management. It will use and develop most up to date methods for systematic selection of MPAs, merging a basic holistic approach with heuristic and iterative improvements of socio-political constraints. It will integrate functions of ecosystem components with human activities, in accordance with the priority of the work programme specific measures in support of international cooperation regarding marine issues.

Partners

• FUNDACAO DA UNIVERSIDADE DE LISBOA	Portugal
• WORLD MARITIME UNIVERSITY	Sweden
• OVERSEAS DEVELOPMENT GROUP (UEA)	United Kingdom
• SOUTH AFRICAN ASSOCIATION FOR MARINE BIOLOGICAL RESEARCH	South Africa
• CENTRE FOR SUSTAINABLE DEVELOPMENT FOR COASTAL ZONES	Mozambique
• WESTERN INDIAN OCEAN MARINE SCIENCE ASSOCIATION	Tanzania
• INSTITUTO DE CIENCIA APLICADA E TECNOLOGIA	Portugal
• NATURAL HISTORY MUSEUM	United Kingdom
• UNIVERSITY OF CAPE TOWN	South Africa
• INSTITUTE OF MARINE SCIENCES — UNIVERSITY OF DAR ES SALAAM	Tanzania
• DEPARTMENT OF BIOLOGICAL SCIENCE, UNIVERSIDADE EDUARDO MONDLANE.	Mozambique
• HOEGSKOLAN I KALMAR.	Sweden

Specific research activities for SMEs

SME-1

SME-2

Aquaculture 'Airforce'
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SME-1: Co-operative Research (all areas of science and technology)

List of projects

- ALFA
- ALGADEC
- AQUADEGAS
- BLUE SEED
- CODLIGHT TECH
- COMPETUS
- DOLFIN
- ENVIROPHYTE
- ESCAPEPROOFNET
- FISHTANKRECIRC
- GRRAS
- INTELFISHTANK
- KEYZONES(R)
- LUCIOPERCIMPROVE
- MUSSELHARVEST
- NETWASH
- OCEANSAVER
- PERCATECH
- PROTENCH
- RACEWAYS
- SAMANTHA
- SPIINES 2
- SPONGES
- STUNFISHFIRST
- SUBFISHCAGE
- TURPRO

ALFA: Development of an automated innovative system for continuous live feed production in aquaculture hatchery units

Call number:	FP6-2002-SME-1	*DG responsible:*	DG RTD
Contract number:	512789	*Total Project Cost:*	1.657.222,00
Contract type:	SMEs-Co-operative research projects	*EC Contribution:*	1.143.776,00
		Actionline:	Co-operative Research (all areas of science and technology)
Starting Date:	01/06/2005		
Duration (months):	30	*Keyword:*	Aquaculture / New Rearing Technologies
Project website:	http://alfa.akvaplan.com/ http://www.akvaplan.niva.no/projects/summaries/aquaresearch/Craft%20ALFA.asp		

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Live food production in intensive marine fish hatcheries comprises of repetitive manual tasks that could be performed by specialised automated equipment. High use of manpower for repetitive work may result in frequent human errors, delays in specific production phases, and poor efficiency of the unit. Such problems may affect the productivity of the hatchery with respect to both quantity and quality of live feed and fry. The proposed project aims at developing an innovative fully automated system for the continuous production of phytoplankton (algae) as live feed in aquaculture hatcheries. This system will guarantee optimal microclimatic and nutritional conditions for the stable growth of algae by using both natural and artificial illumination and controlling the temperature, the nutrient content, the pH and the CO_2 concentration of the water. Locally adapted cultures of live feed and local climatic conditions will be taken into account for designing such a system. For this reason, three different designs will be developed, for cold, temperate and tropic waters respectively. A novel optical test based on colour-image analysis techniques will be used online for continuously assessing the growth rate and the quality of the culture. Since the algae production is partially used for feeding rotifers, a secondary objective of the proposed project is to link the new continuous algae production system to the existing rotifer production systems. Another main objective of the proposed project is to develop an automatic harvesting, transferring and packaging system for efficiently managing the continuous algae production. In this way, the production will be automatically harvested and transferred to other components of the hatchery according to demand, while surpluses will be stored. A concentration and storage unit will be developed for short- to medium-term storage of the live algae. This will allow excess production to be temporarily stored at the hatchery.

Partners

• AKVAPLAN-NIVA AS	Norway
• ARGOSARONIKOS FISH FARMS S.A.	Greece
• VIVEIRO VILANOVA S.A.	Portugal
• SAGRO AQUACULTURE LTD	Cyprus
• EVOLUTION AQUA LTD	United Kingdom
• NORSK MARIN YNGEL AS	Norway
• AGRICULTURAL UNIVERSITY OF ATHENS	Greece
• RESEARCH ACADEMIC COMPUTER TECHNOLOGY INSTITUTE	Greece
• UNIVERSITY OF BERGEN	Norway

ALGADEC: Development of a rRNA-Biosensor for the Detection of Toxic Algae

Call number:	FP6-2002-SME-1	*DG responsible:*	DG RTD
Contract number:	508435	*Total Project Cost:*	1.071.402,00
Contract type:	SMEs-Co-operative research projects	*EC Contribution:*	591.216,00
		Actionline:	Co-operative Research (all areas of science and technology)
Starting Date:	15/07/2004		
Duration (months):	29	*Keyword:*	Marine Environment / HAB / Fisheries / Aquaculture
Project website:	http://www.algadec.net/index2.html		

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Toxin-producing microalgae have been responsible for great environmental, economic and public health catastrophes throughout history. These 'Harmful Algal Blooms' are known to cause a wide range of detrimental effects such as cutaneous damage in swimmers, nervous and digestive disturbances through contaminated seafood, which can even lead to death, physical impairment of fish and shellfish, and degradation of habitats. Moreover, these direct effects of toxic algae have important economic impacts for instance in tourism, fishing and fish farming. In the last decades the problem has turned more and more critical, because alteration of ecological systems as a consequence of human activity seems to enhance proliferation of toxin-producing algae. A concentration of only a few cells per litre of some microalgae may produce harmful toxic effects. Therefore, developing and commercialising an adequate device to spot such organisms would be of great utility in order to avoid, for instance, their appearance in fish farms. The specific recognition of a poisonous strain is however complicated. A distinction at molecular level is necessary in order to discriminate between harmful and inoffensive strains, which are, in some cases morphologically identical. The project aims at developing a biological sensor capable of detecting rapidly and specifically the presence of harmful algal blooms. The in-situ specific recognition of algae's ribosomal RNA will be possible by means of a Sandwich-Hybridisation on an electrochemical sensor. A multi-probe chip will be designed to obtain tailor made sensors containing the most relevant species for a determined area. In order to achieve an adequate device for field applications, a fluidic cell and a warming chamber, as well as the corresponding control software will be developed to automate and optimise the hybridisation process. Thanks to the characteristics above described the ALGADEC device will constitute an adequate device for HABs monitoring. In addition, all developments will be performed aiming at the achievement of a cost-effective device in order to enable fish- and shellfish-farmers to check the toxic algal levels of their waters and thus take the corresponding measures to prevent economic losses and to ensure product safety.

Partners

• ISITEC GMBH	Germany
• INNSBRUCK MEDICAL UNIVERSITY	Austria
• HAVFORSKNINGSINSTITUTTET	Norway
• BCS BIO- UND CHEMOSENSOREN GMBH	Germany
• CYTOBUOY BV	The Netherlands
• JUAN JOSE MARTIN RODRIGUEZ	Spain
• SKAGERRAK SKJELLMOTTAK AS	Norway
• NORTH BAY SHELLFISH LTD	United Kingdom
• PALM INSTRUMENTS	The Netherlands
• INSTITUTO ESPANOL DE OCEANOGRAFIA	Spain
• ALFRED WEGENER INSTITUTE FOR POLAR AND MARINE RESEARCH	Germany
• UNIVERSITY OF WESTMINSTER	United Kingdom

AQUADEGAS: Development of cost effective, reliable, robust, flexible, compact and efficient degassing and aeration method for intensive aquaculture

Call number:	FP6-2004-SME-COOP	*DG responsible:*	DG RTD
Contract number:	32917	*Total Project Cost:*	1.351.569,00
Contract type:	SMEs-Co-operative research projects	*EC Contribution:*	745.060,00
		Actionline:	Co-operative Research (all areas of science and technology)
Starting Date:	15/01/2007		
Duration (months):	24	*Keyword:*	Aquaculture / New Rearing Technologies
Project website:	http://www.aquadegas.com/wip4/		

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Optimum water quality in land based aquaculture production is essential for the survival rate as well as for the growth rate of fish in different phases of their life cycle, and hence also for the productivity per m3 effective tank volume. The fish in the production units consume oxygen from the water. In addition, there is a considerable discharge of food spill, faeces and gases in water, all of which can have a harmful effect on the fish. With increasing reuse and recirculation of water, degassing of water becomes essential in order to keep the water quality at acceptable levels.

The project idea of AquaDeGas is to develop a cost effective, reliable, robust, flexible, compact and efficient degassing method, which meets the needs of the aquaculture sector for removing oversaturated harmful gases, i.e carbon dioxide, nitrogen and argon. This will be made possible through development and application of ejector and nozzle technique for formation of micro-bubbles for effective gas exchange in water integrated with sensor- and control technology.

Partners

• ARTEC AQUA AS	Norway
• STIFTELSEN TEKNOLOGISK INSTITUT	Norway
• SELONDA AQUACULTURE S.A.	Greece
• ASWEGA LTD	Estonia
• BLUEWATER FLATFISH FARMS LTD	United Kingdom
• OXYMAT A/S	Denmark
• MAINSTREAM NORWAY AS	Norway
• POLLUTION CONTROL SYSTEMS LTD	Ireland
• TRANSVAC LTD	United Kingdom
• UNIVERSITY OF WALES	United Kingdom
• PERA INNOVATION LIMITED	United Kingdom

BLUE SEED: Technology development for a reliable supply of high quality seed in blue mussel farming

Call number:	FP6-2003-SME-1	*DG responsible:*	DG RTD
Contract number:	17729	*Total Project Cost:*	1.344.387,00
Contract type:	SMEs-Co-operative research projects	*EC Contribution:*	805.377,00
		Actionline:	Co-operative Research (all areas of science and technology)
Starting Date:	01/11/2005		
Duration (months):	25	*Keyword:*	Aquaculture / Production Methods & Systems
Project website:	http://www.blueseedproject.com		

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The objectives are to secure a reliable supply of blue mussel seed and to develop techniques allowing farmers to market blue mussels year round. A problem blue mussel producers face is the unpredictability seed supply. Seed is mostly harvested from suspended substrates or mussel beds. The amounts of wild seed available are extremely variable from year to year. A reliable supply of seed from hatchery sources will allow mussel farmers to overcome this. A second problem is that recently spawned mussels cannot be sold due to insufficient meat content. Producers will benefit greatly from a hatchery-based technique, such as triploid induction, that produces non-maturing mussels that can be marketed year round. Mussel farmers and sellers, a network for training and technology transfer, universities and research institutes will collaborate and focus on:

1) broodstock conditioning and larval rearing;

2) production of triploid larvae and tetraploid broodstock;

3) spat settlement and on rearing of diploid and triploid spat to seed size;

4) comparison of the allowed costs of hatchery produced seed with conventional wild-caught seed.

Considering the normal 2 to 3 year production cycle for blue mussel in Europe, the focus of the project will be on spat and seed production. The project outcomes will include a reliable method to produce triploid seed, allowing year-round production of high quality mussels, protocols for spat and seed production, and an analysis of the economic feasibility of the new techniques developed. In addition, knowledge transfer between RTDs and SMEs and the dissemination and exploitation of results outside the consortium will be ensured. Project results will be communicated within the consortium and to end-users, through workshops, meetings with producer associations and a website.

Partners

• WAGENINGEN IMARES	The Netherlands
• AQUATT UETP LIMITED	Ireland
• GRAINOCEAN	France
• VISKWEKERIJ NEELTJE JANS BV	The Netherlands
• DEEPDOCK LIMITED	United Kingdom
• ORGANIZACION DE PRODUCTORES MEJILLONEROS DE GALICIA OPP N0 18	Spain
• ROEM VAN YERSEKE BV	The Netherlands
• CENTRO DE INVESTIGACIONES MARINAS	Spain
• INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	France
• BANGOR UNIVERSITY	United Kingdom

CODLIGHT TECH: Light Technology for Photoperiod Regulation in Cod Mariculture

Call number:	FP6-2004-SME-COOP	*Total Project Cost:*	1.555.924,00
Contract number:	32859	*EC Contribution:*	999.074,00
Contract type:	SMEs-Co-operative research projects	*Actionline:*	Co-operative Research (all areas of science and technology)
Starting Date:	01/06/2006	*Keyword:*	Aquaculture / Production Methods & Systems
Duration (months):	30		
DG responsible:	DG RTD		

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Cod held in intensive culture mature within two years from hatching, lose somatic growth rate, their condition worsens, their flesh composition deteriorates and they lose at least 25 % of their wet weight. A delay or cessation of maturation during on-growing is therefore crucial for profitable farming. Seasonally-changing day length (photoperiod) is the natural time-keeping mechanism used by finfish from temperate latitudes to entrain a number of important physiological processes, including sexual maturation and overlaying of artificial illumination on the natural day-night cycle in day length masks this seasonally changing signal. Such techniques have been shown to successfully regulate maturation in a number of tank-based studies in Atlantic cod, in which a complete cessation of maturation and up to a subsequent 60 % improvement in growth have been observed. When such test photoperiods are applied at a commercial scale in open floating-cage systems, it is believed that ambient light can have a major regulatory influence, and as such, the results reported have not been consistently reproducible. The research focuses on the development of a new lighting technology based on cold cathode light tubes, and then on the appropriate lighting protocols for the system's application in cod mariculture. This project intends to test and demonstrate the efficacy of this technology with an improved light-intensity output of 240 % compared to the first generation systems and more importantly a production price estimated to be in the region of only 10 % to 15 % of a Light Emitting Diode (LED) setup (this is the only possible comparable technology). This new technology will thus be tested in a range of commercial cod-farms, reflecting the diverse nature (latitude and systems) of the EU cod-farming industry. A simple analytical maturation detection kit will be developed, allowing real-time detection of sexual maturation activity on farm. Also, a comparison of standard manual assessment (lengthweight) and the use of passive measuring system for growth assessment and the development of a basic standardised flesh-quality scheme in relation to lighting regimes. As a whole, this proposal represents a number of key fundamental developments.

Partners

• ICELANDIC FISHERIES LABORATORIES	Iceland
• HAVFORSKNINGSINSTITUTTET	Norway
• JOHNSON SEAFARMS LTD	United Kingdom
• INTRAVISION ARKTEKTUR AS	Norway
• HRADFRYSTIHUSID GUNNVVR HF	Iceland
• VAKI DNG HF	Iceland
• FJORD MARINE HELGELAND AS	Norway
• ALFSFELL EHF	Iceland
• SVERIGE LANTBRUKSUNIVERSITEIT	Sweden
• THE UNIVERSITY OF STIRLING	United Kingdom

COMPETUS: Genetic improvement of farmed sea bass, Dicentrarchus labrax: Strain testing and response to selection

Call number:	FP6-2003-SME-1	*DG responsible:*	DG RTD
Contract number:	17633	*Total Project Cost:*	953.540,00
Contract type:	SMEs-Co-operative research projects	*EC Contribution:*	523.763,00
		Actionline:	Co-operative Research (all areas of science and technology)
Starting Date:	01/11/2005		
Duration (months):	36	*Keyword:*	Aquaculture / Genetics & Breeding

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Since several years, overproduction of sea bass and sea bream in Europe has provoked a severe diminution of retail price of commercial size fish and producers have seen their profit margins decreasing dramatically. In such a depressed and saturated market, optimization of production processes is not anymore sufficient to recover the narrow profit margin of industrialists. Genetic selection should give the opportunity to acquire a sustainable competitiveness, with the possibility to supply the market with seeds improved for a simple but economically sensitive criterion: growth rate, which remains one of the main breeding goals of fish farmers. Nevertheless, today, the Mediterranean aquaculture industry is not yet deeply involved in such programs. It seems that not enough critical information regarding efficiency of breeding programs or necessary means to set them up, has reached the sector decision-makers.

The aim of Competus is to fill this gap providing to the participating SMEs, this lacking information, i.e.:

- Performance comparison (based on measurement of several traits of commercial interest) of the 3 geographic and genetically differentiated wild sea bass populations.
- Assessment and comparison to a control line, of the genetic progress of two 1rst generation selected sea bass populations derived from classical individual selection and optimized individual selection (called PROSPER).
- A detailed description of the studied selection approaches and their associated costs.

At the end of the project, participating SMEs will have the basic information necessary to evaluate the opportunity to implement such programs in their own facilities and adequate fish to start with. Competus will also test the PROSPER selection strategy, developed for

small to medium-scale breeding programs, that was exclusively used in French aquaculture up todate. Here, it will be described to fish farmers of other EU members or associated states.

Partners

• INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	France
• ISTITUTO SPERIMENTALE ITALIANO 'LAZZARO SPALLANZANI'	Italy
• VIVEIRO VILA NOVA SA	Portugal
• ECLOSERIE MARINE DE GRAVELINES	France
• LES POISSONS DU SOLEIL	France
• ARDAG COOPERATIVE AGRICULTURAL ASSOCIATION	Israel
• TINAMENOR, S.A.	Spain
• SYNDICAT DES SELECTIONNEURS AVICOLES ET AQUACOLES FRANCAIS	France
• AKDENIZ SU ÜRÜNLERI ARASTIRMA, ÜRETIM VE EGITIM ENSTITÜSÜ MÜDÜRLÜGÜ	Turkey
• ISRAEL OCEANOGRAPHIC AMP LIMNOLOGICAL RESEARCH	Israel
• UNIVERSITA DEDLI STUDI DI UDINE	Italy
• INSTITUT NATIONAL DE LA RECHERCHE AGRONOMIQUE	France

DOLFIN: Development of Innovative Plastic Structures for Aquiculture using a New Composite with crop waste as reinforcing filler

Call number:	FP6-2002-SME-1	*DG responsible:*	DG RTD
Contract number:	508682	*Total Project Cost:*	1.077.466,00
Contract type:	SMEs-Co-operative research projects	*EC Contribution:*	612.482,00
		Actionline:	Co-operative Research (all areas of science and technology)
Starting Date:	01/03/2004		
Duration (months):	30	*Keyword:*	Aquaculture / New Rearing Technologies
Project website:	https://www.aimplas.es/proyectos/dolfin/		

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The main objective of the project is to design, produce and optimise innovative aquaculture structures using a new plastic composite reinforced with organic filler (crop waste) specially developed in the project for applications in permanent contact with water. The new composite will have the necessary characteristics to obtain new structures and devices with enhanced properties compared to the present ones. The project will combine two completely different waste flows (plastic and crop) to produce new aquaculture structures, both for a totally innovative concept for mollusc farming rafts and for replacing other materials (metals or non-reinforced plastics) in already existing structures (flotation rings and devices for sea-based fish farms and tanks for land-based fish farms). The project will also help to solve the problems associated with rafts or other wooden structures in permanent contact with water, such as the reduction of mechanical properties (due to the effects of water) and rotting. Simultaneously, it aims to find an economically viable solution for crop residues, using them as fillers in the manufacture of this new plastic composite. The new composite will be 100 % recyclable. There is currently crop waste (husks, stalks and leaves) from rice, sunflower, wheat, barley and other cereals, whose economic exploitation is next to nothing or nil, and whose burning in croplands constitutes a significant source of environmental pollution in production areas. The project aims to obtain a low-cost plastic composite taking advantage of unexploited or underexploited crop waste, applying the new material (in an initial stage) to manufacture water contact applications. The environmental aspects of the project (with their intangible costs), looking for a useful approach for these residues, increase the relevance of the proposed research. The small to medium-sized enterprise (SME) proposers will exploit the project results in the short term. The new composite material will be obtained by incorporating the selected crop waste (husk andshort natural fibres to improve mechanical properties) into a recycled thermoplastic polymeric matrix. The use of recycled plastics as polymeric matrix shall be a priority. The best proportion of polymeric matrix/ crop waste shall be defined accordingly primarily on, among other factors, the mechanical characteristics of the final product and the

existing polymer processing technologies suited to their manufacture. Special emphasis will be paid on the polymer matrix / crop waste compatibility in order to reach the desired mechanical properties in the final product. This aspect of the compounding process is critical, because if a good adhesion between both components is not obtained the properties of the material will be poor and of no use. The project will achieve both the technical objective of developing a new product, and the environmental objective of recycling waste materials for which currently there are few other options. A life cycle assessment will be carried out to determine the raft's environmental impact from the beginning to the end of its life cycle, in order to position it compared to rafts used up to now.

Partners

• MIFSUD S.L.	Spain
• PLASTSVEIS A/S	Norway
• GIGANTE AS	Norway
• CENTRIFORCE PRODUCTS LTD	United Kingdom
• RONAUTICA S.A.	Spain
• ENTEX RUST & MITSCHKE GMBH	Germany
• INPLASVA S.A.	Spain
• MEXIANA PRODUCAO DE MEXILHOES LDA	Spain
• NORTH BAY SELLFISH LTD	United Kingdom
• AKUMPLAST JSC	Bulgaria
• AIMPLAS — ASOCIACION DE INVESTIGACION DE MATERIALES PLASTICOS Y CONEXAS	Spain
• STIFTELSEN TEKNOLOGISK INSTITUT	Norway
• UNIVERSIDAD DE VIGO	Spain
• BANGOR UNIVERSITY	United Kingdom

ENVIROPHYTE: Cost effectiveness of marine land-based facilities through use of Constructed Wetlands with Salicornia as an environmentally friendly biofilter and valuable by-product

Call number:	FP6-2004-SME-COOP	*Total Project Cost:*	1.426.733,90
Contract number:	32167	*EC Contribution:*	1.049.551,60
Contract type:	SMEs-Co-operative research projects	*Actionline:*	Co-operative Research (all areas of science and technology)
Starting Date:	01/11/2006	*Keyword:*	Aquaculture / Production Methods & Systems
Duration (months):	30		
DG responsible:	DG RTD		

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One of the main economic problems for small to medium-sized enterprises (SMEs) operating landbased facilities is the cost of water treatment. The cost of this single item, approximately EUR 0.5 per kilogram of feed consumed by the fish, can mean the difference between a profit-making enterprise and failure. Developing a cost-effective biofilter which will remove the nutrients from the water and convert these nutrients into valuable products, can potentially resolve both economic and environmental constraints. Protein is the most expensive component of fishmeal and the main source of nitrogenous pollution in aquaculture. In conventional mariculture, fish or shrimps assimilate only part of their diets; the rest is excreted into the water, mainly as dissolved inorganic or solid organic compounds. These effluents may damage coastal ecosystems. According to international (EU) and national regulations, fish effluents must be treated before being discharged back into the sea. We propose the use of constructed wetlands (CW) planted with halophytes, which would take in the nutrient-rich wastewater and convert it into valuable plant biomass. The CW will be evaluated in three prototypes, in cold, temperate and warm water conditions, representative of systems that may be applied in the prevailing climates of most European countries. CW is efficient in clearing water of nutrients and suspended solids, some materials being purified through incorporation into the plants and others attaching to the substrate or being broken down by bacteria living therein. CW has the benefit of being low cost, simple to operate, and can be given an aesthetically pleasing appearance to attract tourism. Salicornia is a succulent halophyte, which flourishes best in intertidal areas flooded by brackish and seawater and collects nutrients and salts. These plants have commercial value as a health food and are potential candidates for the health, beauty and nutraceutical industries. The Salicornia market is presently based mostly on amateur gathering of branches from wild plants, which limits the market supply because most natural wetlands are protected areas, where harvesting is limited or forbidden. Quality and quantity of the halophytes are inconstant and change throughout the year and the product is not clean or uniform, which is a

disadvantage for commercial processing. Conversion of 'expensive' nitrogen from fishpond effluents into a valuable commodity as a raw product or source of extract for the beauty and nutraceutical industries will diversify the fish-farm products and will increase the profitability of land-based facilities.

Partners

• ISRAEL OCEANOGRAPHIC AMP LIMNOLOGICAL RESEARCH	Israel
• CENTER OF MARINE SCIENCES OF ALGARVE	Portugal
• LLYN AQUACULTURE LTD	United Kingdom
• ICHTYO DEVELOPPEMENT EAU ENVIRONNEMENT	France
• ARDAG COOPERATIVE AGRICULTURAL ASSOCIATION	Israel
• AQUAMARIME AQUACULTURA DE MARIM LDA	Portugal
• BRETAGNE COSMETIQUES MARINS	France
• AGRIMER	France
• CENTRE D'ETUDE ET DE VALORISATION DES ALGUES	France
• BANGOR UNIVERSITY	United Kingdom
• BEN-GURION UNIVERSITY	Israel

ESCAPEPROOFNET: Escapees in European Aquaculture Development of an Escape-proof Net Especially for Cod, Bass and Bream Fish Farming

Call number:	FP6-2004-SME-COOP	*DG responsible:*	DG RTD
Contract number:	32690	*Total Project Cost:*	1.296.471,00
Contract type:	SMEs-Co-operative research projects	*EC Contribution:*	671.685,00
		Actionline:	Co-operative Research (all areas of science and technology)
Starting Date:	01/10/2006		
Duration (months):	24	*Keyword:*	Aquaculture / New Rearing Technologies
Project website:	http://www.escapeproofnet.com/wip4/		

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Intensive farming of species like sea bass, sea bream and cod, uses to a large extent technology that traditionally was developed and specialized for salmon farming purposes. This has been shown not to be optimal, among other things with respect to net design, materials used, and resistance against gnaws and chip-ups. The reason for these problems is differences in species behaviour.

Sea bass, sea bream and cod are aggressive towards the net itself, more than other species, and biting, sucking and snatching on loose rope ends, knots etc., is often seen. As a result, holes in the net may occur, leading to escapees and loss of fish stock. Due to this, there is considerable concern with respect to aquaculture representing a threat to ecology and biodiversity, representing risk of disease transfer from aquaculture to wild fish populations and potential genetic pollution of wild fish. In addition, escapees represent a considerable decrease in competitiveness for the large community of European aquaculture SMEs.

Thus, the project will develop a sea cage net system especially suitable for farming of typical net aggressive fish species like European sea bass, Gilthead sea bream and Atlantic cod, currently important in the European fish farming industry and in the near future.

To achieve this, a cost-effective net filament will be developed, with exact physical characteristics and incorporated impregnation and repulsive agents for the prevention of fouling, biting & snatching behaviour. An adaptation of existing net manufacturing technique for optimal exploitation of material characteristics will also be developed and used to produce a net with improved design regarding configuration, strength & durability that will also fulfil the requirements to embrace low operational costs.

Partners

• TEKNOLOGISK INSTITUT AS	Norway
• AIMPLAS — ASOCIACION DE INVESTIGACION DE MATERIALES PLASTICOS Y CONEXAS	Spain
• STIFTELSEN TEKNOLOGISK INSTITUT	Norway
• BSM TRADING S.R.L.	Italy
• STEEN-HANSEN MALING AS	Norway
• ALCOLOR, S.A.	Spain
• OCEAN NETS LTD	United Kingdom
• HELGELANDSTORSK AS	Norway
• MARINA 2000 S.N.C.	Italy
• PERA INNOVATION LIMITED	United Kingdom

FISHTANKRECIRC: Development of electro-coagulation technique for optimal cleaning efficiency and maximum reuse of water in land based fish farming

Call number:	FP6-2002-SME-1	*DG responsible:*	DG RTD
Contract number:	512951	*Total Project Cost:*	1.324.479,00
Contract type:	SMEs-Co-operative research projects	*EC Contribution:*	683.616,00
		Actionline:	Co-operative Research (all areas of science and technology)
Starting Date:	01/11/2004		
Duration (months):	24	*Keyword:*	Aquaculture / New Rearing Technologies
Project website:	http://www.fishtankrecirc.com/wip4/		

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The European aquaculture production has increased substantially over the last decades. However, overall production growth in Europe over the period 1994- 2001 was 6,3 % APR, 5,5 % less than the global trend over the same period. The overall price trend was negative (- 0,5 % APR) vs. positive global development. This sector has experienced increasing competition from non-EU countries, especially Asia and South America; this has made it imperative to increase research and development in this sector. Land-based fish farming is the critical success factor in intensive aquaculture since land-based fish farmers are at the start of a very complicated value chain representing a prerequisite in order to have competitive sea farms. Furthermore, land-based fish farms are the most important 'tool' in order to develop and commercialise fish farming of new species, since control with water quality is essential. Further development of land based fish farms is therefore crucial for the aquacultural sector and its service and technology providers. Water is one of the most critical input factors, and control of water quality is therefore essential for optimal growth. Our idea is to develop a water treatment system based on electro-coagulation techniques, to fulfil the need of European aquaculture for rearing inland fish through intensive recirculation of water with costeffective and reliable technology. The treatment system addresses the challenges of European aquaculture towards increased competition, scarcity of water resources, environmental degradation and customer demand. To achieve these objectives, we will need to develop a novel reactor configuration for an electro-coagulator, able to remove the organic particles, phosphates, nitrates and ammonia as well as soluble organics at the rate necessary to increase the water quality and associated growth rates of the fish. to create this technological capability, new knowledge will be acquired and applied to specific development routes related to the acquisition of a deeper scientific understanding of the physical, chemical and biological environment in aquaculture tanks, the electrochemical processes and the performance of electrodes in waste water suspensions. In addition we will need to

develop an intelligent filtration and water control technology that includes a filtration unit for optimal collection of course particles in a wide range of particle concentrations and water flow, integrated with pump and valve technology controlled by hydrometers for maximum cleaning effects, to maintain optimal water currents in the aquaculture tank for proper self-cleaning effects in tanks. Finally, we will need to create an electrocoagulation reactor that enables the formation of micro-bubbles, ionisation, electrolysis, free radical formations and magnetic effects to clean the water from a wide range of fine concentrations of particles and nitrogen compounds.

Partners

• PHARMA DRUG DISCOVERY DEVELOPMENT AG	Austria
• EMERGENTEC BUSINESS ANALYTICS GMBH	Austria
• ENVICARE ENGINEERING GMBH	Austria
• PLAY — VEREIN ZUR FURDERUNG VON DJ- UND CLUBKULTUR	Austria
• EV GROUP	Austria
• AQUACONSULT ANLAGENBAU GMBH	Austria
• DIPL.ING.ANDREAS MOSER	Austria
• CONFEDERATION OF EUROPEAN PAPER INDUSTRIES	Belgium

GRRAS: Towards Elimination of Growth Retardation in Marine Recirculating Aquaculture Systems for Turbot

Call number:	FP6-2004-SME-COOP	*DG responsible:*	DG RTD
Contract number:	32556	*Total Project Cost:*	1.560.004,00
Contract type:	SMEs-Co-operative research projects	*EC Contribution:*	1.066.389,00
		Actionline:	Co-operative Research (all areas of science and technology)
Starting Date:	01/10/2006		
Duration (months):	24	*Keyword:*	Aquaculture / Production Methods & Systems
Project website:	http://www.rivo.dlo.nl/grras		

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Recirculating Aquaculture Systems (RAS) offer significant advantages over open aquaculture systems. These advantages are heavily underutilized because the application of RAS is limited. Growth retardation is the major restraint and until this is eliminated, economic feasibility of aquaculture in RAS remains marginal, significant aquaculture production in RAS will not be established and the advantages of RAS remain underutilized. Growth retardation has been observed for most species cultured in RAS but the causes remain obscure. The turbot industry is the first aquaculture industry that applies RAS on a large scale to produce market size marine fish. Therefore the turbot industry is the first aquaculture industry to be heavily affected by growth retardation. Growth of turbot in RAS is 15-20 % lower compared to flow through systems. Individual turbot farms have tried but were unable to solve the problem by them selves. Therefore they need to join forces with other turbot farms and RTDs in this project. Without the elimination of growth retardation it is either back to flow through systems or an insecure and marginally feasible future with RAS. The working hypothesis for this project is that growth retardation is caused by accumulation of growth inhibiting factors (GIF) in the culture water. Both the fish and bacteria are believed to produce these GIF.

The objectives of this project are:

1) exchange, analyse and document the results of individual farm experiments over the years;

2) establish the production, presence and effects of GIF by the fish and bacteria on turbot;

3) investigate means for GIF removal and prevention of its production in RAS;

4) establish the physiological status of fish cultured in RAS.

Overall it is foreseen that this project will result in a large increase of our knowledge and understanding of growth retardation in RAS. This would be a large step towards elimination

of growth retardation in marine RAS which is of major importance for all future aquacultures in RAS.

Partners

• WAGENINGEN IMARES	The Netherlands
• UNIVERSITEIT WAGENINGEN	The Netherlands
• SEAFARM BV	The Netherlands
• ECOMARES ZEELAND VIS BV	The Netherlands
• ECOMARES MARIFARM GMBH	Germany
• FRANCE TURBOT SAS	France
• BLUEWATER FLATFISH FARMS LTD	United Kingdom
• GROENTE — EN VISKWEKERIJ CORNELISSE BV	The Netherlands
• INSTITUT FRANCAIS DE RECHERCHE POUR L EXPLOITATION DE LA MER	France
• UNIVERSITE DE MONTPELLIER 2	France
• UNIVERSITY OF WALES SWANSEA SCHOOL OF BIOLOGICAL SCIENCES	United Kingdom

INTELFISHTANK: Development of an intelligent fish tank for cost effective aquaculture through control of water quality in each different fish tank

Call number:	FP6-2003-SME-1	*DG responsible:*	DG RTD
Contract number:	17977	*Total Project Cost:*	1.153.818,20
Contract type:	SMEs-Co-operative research projects	*EC Contribution:*	623.463,00
		Actionline:	Co-operative Research (all areas of science and technology)
Starting Date:	01/01/2006		
Duration (months):	24	*Keyword:*	Aquaculture / New Rearing Technologies
Project website:	http://www.intelfishtank.com/wip4/		

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European aquaculture production has increased substantially over the last decades. However, overall production growth in Europe over the period 1994 to 2003 was 5.5 % less than the global trend over the same period, and the overall price trend was negative (-0.5 % APR) vs. positive global development. The aquaculture sector has experienced increasing competition from non-EU countries, especially Asia and South America, making it imperative to increase research and development in this sector. Land-based fish farming is the critical success factor in intensive aquaculture, as the start of a very complicated value chain representing a prerequisite in order to have a competitive European aquaculture with regards to 'established' species and introduction of new species in aquaculture. Water quality is the most critical factor in aquaculture and is essential for the survival rate as well as the growth rate of fish in the different phases of its lifecycle. Our project focuses on productivity per cubic metre of effective tank volume, by increasing the density of fish in aquaculture tanks, as well as increasing their growth rate, hence improving productivity, reducing costs and improving cost-efficiency and competitiveness of landbased fish farming in Europe. Oxygen is the most important water quality parameter. Our idea is to develop a cost-effective, highly efficient system for oxygenation and water distribution in an integrated aquaculture tank system for land-based fish farming, enabling control of water quality in each different tank in an aquaculture plant. The principle innovation in this project is the development of a sensor and control system for the oxygenation and water flow in the production of different types of freshwater and saltwater fish in the land-based fish farming industry in Europe. Control of oxygenation of water in aquaculture tanks is also essential for recirculation and reuse of water, representing strong environmental advantages compared to 'flow-through' systems.

Partners

• PLASTSVEIS A/S	Norway
• STIFTELSEN TEKNOLOGISK INSTITUT	Norway
• ASWEGA LTD	Estonia
• ARTEC AQUA AS	Norway
• FJORD SEAFOOD SCOTLAND FARMING LTD	United Kingdom
• OXYMAT A/S	Denmark
• TSURUMI-INTEC PUMP AB	Sweden
• PAN FISH NORWAY AS	Norway
• GDANSK UNIVERSITY OF TECHNOLOGY	Poland
• PERA INNOVATION LIMITED	United Kingdom

KEYZONES(R): To investigate sustainable biological carrying capacities of key European coastal zones

Call number:	FP6-2002-SME-1	*Total Project Cost:*	1.102.800,00
Contract number:	512664	*EC Contribution:*	755.281,00
Contract type:	SMEs-Co-operative research projects	*Actionline:*	Co-operative Research (all areas of science and technology)
Starting Date:	01/02/2005	*Keyword:*	Aquaculture / Interaction with Environment
Duration (months):	30		
DG responsible:	DG RTD		

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This project deals with the characterization of the carrying capacity of key European coastal zones for commercial production of bivalve shellfish. The research is designed to produce powerful tools which would enable shellfish producers in the targeted areas to optimise production capacity, recruitment of young stock, and quality whilst reducing waste. The research consists of 5 inter-dependent TECHNICAL workpackages: Historical Data Collection: Objectives are the collection and storage of historical data that describe environmental parameters and processes at each culture environment (Loch Creran-UK, Eastern Scheldt — Netherlands and SE Waterford-Ireland), including the physiology and culture practise for each main shellfish species cultured in those environments. Field Work: Objectives are to measure (i) temporal and spatial variations in the environmental parameters that act as forcing functions driving our simulations of shellfish growth and ecosystem processes (e.g. food availability, light, temperature) (ii) physiological responses required to parameterize the generic physiological model for each shellfish species, and (iii) natural shellfish growth and ecosystem variables (e.g. chlorophyll) that will be used to calibrate and validate the models Ecosystem scale modelling: Objectives are to describe and predict carrying capacity, using ecological modelling. Ecosystem models with variable spatial resolution will be used, in order to combine hydrodynamics, biogeochemistry and shellfish population dynamics for multi-year simulation. The specific objectives, for each culture environment (Loch Creran UK, Waterford estuary Ireland, Eastern Scheldt Netherlands), are (a) To integrate external forcing from watershed and coast in ecosystem scale models; (b) To simulate the major internal processes responsible for energy flow; and (c) To describe and predict growth for relevant cultivated species; at resolutions that are adequate for fisheries and resource management.

Partners

• NORTH BAY SHELLFISH LTD	United Kingdom
• WAGENINGEN IMARES	The Netherlands
• SCOTTISH ASSOCIATION FOR MARINE SCIENCE	United Kingdom
• THE CALEDONIAN OYSTER COMPANY LTD	United Kingdom
• AART CORNELISSE	The Netherlands
• SOUTH EAST SHELLFISH CO-OPERATIVE LTD	Ireland
• CLEW BAY MARINE FORUM LTD	Ireland
• JOHN COLEMAN T/A LA TENE MAPS	Ireland
• ASSOCIATION OF SCOTTISH SHELLFISH GROWERS	United Kingdom
• COOPERATIEVE PRODUCENTEN ORGANISATIE VOOR DE NEDERLANDSE MOSSELCULTUUR	The Netherlands
• COOPERATIEVE PRODUCENTEN ORGANISATIE NEDERLANDSE OESTERCULTUUR	The Netherlands
• PLYMOUTH MARINE LABORATORY	United Kingdom
• IMAR — INSTITUTO DO MAR	Portugal
• STICHTING WATERLOOPKUNDIG LABORATORIUM	The Netherlands

LUCIOPERCIMPROVE: Improving egg and larval quality in pikeperch by broodstock management, husbandry and nutrition and sex control

Call number:	FP6-2003-SME-1	*DG responsible:*	DG RTD
Contract number:	17646	*Total Project Cost:*	1.534.077,00
Contract type:	SMEs-Co-operative research projects	*EC Contribution:*	976.958,00
		Actionline:	Co-operative Research (all areas of science and technology)
Starting Date:	01/11/2005		
Duration (months):	24	*Keyword:*	Aquaculture / Production Methods & Systems
Project website:	http://www.luciopercimprove.be		

Coordinator Prof Kestemont Patrick
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Recent research has demonstrated the feasibility of cultivating intensively pikeperch Sander (Stizostedion lucioperca), a valuable fish under increasing demand for both the consumption (large size fish, 2-4 kg each) and the restocking (0+ and 1-year old fish) markets. However, the supply of eggs and larvae is still largely dependent on the spawning of wild breeders or captive fish held in ponds during the maturation process. Production of pikeperch eggs and larvae is thus seasonally restricted and extremely variable in quality and quantity. The main objective of the project is to secure the supply of high quality eggs and larvae of pikeperch. To reach that goal, the following specific objectives have been identified:

1) securing continuous supply of eggs and larvae by developing out-season spawning technology by temperature and photoperiod control;

2) investigating the effects of different husbandry and dietary variables on reproductive physiology and nutritional status of breeders and related effects on spawning performances, gamete and larval quality;

3) comparing the quality of eggs and larvae from breeders stocked in various environments (tanks vs cages vs ponds) and definition of a referential for the quality of pikeperch eggs and larvae;

4) setting efficient procedure of broodstock and larval rearing to produce pikeperch sex-reversed males and, in a second step, all-female populations of juveniles.

To compare efficiently the effects of the different variables on gamete and larval quality, standardized larval rearing conditions will be precisely defined at the onset of the project and applied to all experiments.

Partners

• THE UNIVERSITY OF NAMUR, UNIT OF RESEARCH IN ORGANISMIC BIOLOGY	Belgium
• NETHERLANDS INSTITUTE FOR FISHERIES RESEARCH	The Netherlands
• ESOX	France
• EXCELLENCE FISH BV	The Netherlands
• SARL PISCIVAL LES SOURCES	France
• FISH FARM PASLEK (OSRODEK ZARYBIENIOWY W PASLEKU)	Poland
• VISKWEEKCENTRUM VALKENSWAARD	The Netherlands
• NUTRECO NEDERLAND B.V	The Netherlands
• UNIVERSITY OF WARMIA AND MAZURY IN OLSZTYN	Poland
• LIEGE UNIVERSITY	Belgium
• UNIVERSITE HENRI POINCARE	France

MUSSELHARVEST: Development of a cost effective technique for mussel harvesting combined with product control and retubing

Call number:	FP6-2002-SME-1	*DG responsible:*	DG RTD
Contract number:	513049	*Total Project Cost:*	1.020.401,00
Contract type:	SMEs-Co-operative research projects	*EC Contribution:*	527.184,00
		Actionline:	Co-operative Research (all areas of science and technology)
Starting Date:	01/11/2004		
Duration (months):	30	*Keyword:*	Aquaculture / New Rearing Technologies
Project website:	http://www.musselharvest.com/wip4/		

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European aquaculture industry is at a crossroads in its development. It has experienced a steady growth and for some species even an impressive growth in production over the last years. The general prospects for the future is on the one hand a promising potential for further growth and on the other hand significant market changes with increasing challenges such as competition from non EU countries, food safety, the protection of the environment and the management of coastal zones and aquatic resource.

The MUSSELHARVEST project will develop a cost-effective mussel-harvesting machine for off shore harvesting of quality blue mussels from longline systems and automatic retubing of under-sized mussels for grow-out. This includes development of a device for the release of droppers, a device that fastens the retubed socks to the longline and development of a harvesting technique with focus on product quality. The development of a harvesting technique that focuses on mussel quality will consist in mussel stripping in water, use of unconventional materials and hi-tech systems for grading. The project's innovations and development include: a submerged mussel stripper, a grading system that gently and accurately sorts the mussels according to the market preference, an automated retubing technology with integrated systems for attachment and release of mussel droppers.

A high level of automation connected to the conjunction of each activity to merge into a complete, adjusted and efficient mussel harvester for longline systems, also intended for husbandry practices, will be developed.

Partners

• PHARMA DRUG DISCOVERY DEVELOPMENT AG	Austria
• EMERGENTEC BUSINESS ANALYTICS GMBH	Austria
• ENVICARE ENGINEERING GMBH	Austria
• PLAY — VEREIN ZUR FURDERUNG VON DJ- UND CLUBKULTUR	Austria
• EV GROUP	Austria
• AQUACONSULT ANLAGENBAU GMBH	Austria
• DIPL.ING.ANDREAS MOSER	Austria
• CONFEDERATION OF EUROPEAN PAPER INDUSTRIES	Belgium

NETWASH: In-situ Net Cleaning System in Aquaculture

Call number:	FP6-2004-SME-COOP	*DG responsible:*	DG RTD
Contract number:	32788	*Total Project Cost:*	1.181.309,00
Contract type:	SMEs-Co-operative research projects	*EC Contribution:*	644.623,00
		Actionline:	Co-operative Research (all areas of science and technology)
Starting Date:	01/10/2006		
Duration (months):	24	*Keyword:*	Aquaculture / New Rearing Technologies
Project website:	http://www.netwash-project.com/wip4/		

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Fouling in aquaculture is the growth of marine flora and fauna on submerged installations, including the netting. Comprehensive fouling results in clogging of the net, which impedes the passage of water through the fish cage. The reduction in exchange of water can result in depleted oxygen levels and elevated ammonia levels, affecting growth and animal health negatively. In severe cases, increased levels of fish mortality can be prominent, certainly unwanted features for the fish farmer. Also, fouling affects current-induced drag forces on submerged equipment, representing a potential hazard to the fish cage installation overall. Currently, dealing with fouling problems includes expensive operations, as state-of-art technology is neither sufficiently developed nor cost-effective. Hence, there is an urgent need for cost-effective net cleaning equipment suitable for the various cage systems commercially in use in the fish farming sector.

The NETWASH project will develop a cost-effective net cleaning device, which can be remotely operated from above the sea surface. The project will develop and use technology that will have improving effects on environment in terms of reduction of anti-fouling paints and discharge of toxic chemicals from the fish farming sector. To successfully achieve our goal we need to develop a system that includes:

1) a net cleaning technology based on suction and brushes;

2) a vehicle for integration and movement of the net cleaning technology;

3) integration of equipment for monitoring, inspection and movement control.

Partners

• SELOY UNDERVANNSSERVICE AS	Norway
• STIFTELSEN TEKNOLOGISK INSTITUT	Norway
• REFA MED S.R.L.	Italy
• IMENCO AS	Norway
• BTT AUTOMATYKA SP.Z O.O.	Poland
• HRADFRYSTIHUSID GUNNVVR HF	Iceland
• MARINA 2000 S.N.C.	Italy
• NIEBLING TECHNISCHE BUERSTEN GMBH	Germany
• TSURUMI-INTEC PUMP AB	Sweden
• PRODUCTOS Y MANGUERAS ESPECIALES, S.A.	Spain
• GDANSK UNIVERSITY OF TECHNOLOGY	Poland
• PERA INNOVATION LIMITED	United Kingdom

OCEANSAVER: Dramatically reducing spreading of invasive, non-native exotic species into new ecosystems through n efficient and high volume capacity Ballast Water Cleaning System

Call number:	FP6-2002-SME-1	*DG responsible:*	DG RTD
Contract number:	508243	*Total Project Cost:*	1.362.299,00
Contract type:	SMEs-Co-operative research projects	*EC Contribution:*	705.411,00
Starting Date:	01/11/2004	*Actionline:*	Co-operative Research (all areas of science and technology)
Duration (months):	30	*Keyword:*	Aquaculture / Interaction with Environment
Project website:	http://www.oceansaver-project.com/wip4/index.epl?cat@35		

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Transport of micro-organisms in ballast water represents a major contributor to spreading of invasive, non native exotic species into new ecosystems which can result in serious effects on sensitive ecological communities around the world. Both regions in the North Sea and the Mediterranean have experienced uncontrolled growth of 'killer algae' reaching pest proportions in many areas and causing huge economic impact by killing fish in fish farms. The degree of microbiological growth depends in several factors such as water temperature, sunlight and the amount of nutrients in the water and microbiological growth in ballast tanks results in increased maintenance of these tanks including use of VQC containing tank coating products. Microbiological growth, and especially of sulphate reducing bacteria, is enhanced in ballast tanks where sediments have accumulated due to ballast water not being filtered by intake, as the situation is for most ships today. In 1997 the Commission proposed a European Parliament and Council Directive establishing a framework for Community action in the field of water policy (Water Framework Directive, WFD).This Directive will replace, the emission control policy established under Council Directive 76/464/EEC, and the WFD will be the basic legislation for the protection of the European aquatic environment. The project will directly contribute to the objectives of the Water Framework Directive by reduction in water pollution and maintaining the biodiversity in coastal areas and waterways across the EU. It will also contribute to reduction in spreading of non-native exotic micro-organisms to vulnerable ecosystems, the IPPC Directive, i.e. the *'Council Directive concerning integrated pollution prevention and control (96/61/EEC)'* and also other Directives. The global need for a Ballast Water Treatment system that meets the coming IMQ objectives for Ballast Water Treatment systems. Every year more than 10.000 M tons of ballast water is transported around the world. The objective of this project is through an innovative feed back controlled ozone arid nitrogen injection technology to design and built prototype of cost effective Ballast Water Treatment system for use on board ships. The innovations neces-

sary to achieve this are: (1) an innovative and patentable injector unit for an accurate injection and dispersion of ozone; (2) a novel nitrogen injector unit for super saturation of ballast water and; (3) a feed back controlling unit to control the injected amounts through sensors fed feed back control.

Partners

• STIFTELSEN TEKNOLOGISK INSTITUT	Norway
• FOSS & VARENHED ENTERPRISES AS	Norway
• LYNG AQUA S.L.	Spain
• STOGDA SHIP DESIGN & ENGINEERING SP Z.O.O.	Poland
• ABINGTON PARTNERS	United Kingdom
• STERNER AQUA TECH AS	Norway
• AIR PRODUCTS PLC	United Kingdom
• PERA INNOVATION LIMITED	United Kingdom

PERCATECH: Securing juveniles production of Eurasian perch by improving reproduction and larval rearing

Call number:	FP6-2002-SME-1	*DG responsible:*	DG RTD
Contract number:	512629	*Total Project Cost:*	1.482.000,00
Contract type:	SMEs-Co-operative research projects	*EC Contribution:*	764.700,00
		Actionline:	Co-operative Research (all areas of science and technology)
Starting Date:	01/10/2004		
Duration (months):	24	*Keyword:*	Aquaculture / Production Methods & Systems
Project website:	http://www.ensaia.inpl-nancy.fr/percatech/		

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The main objective of this project is to secure the production of Eurasian perch (Perca fluviatilis) juveniles (3-5 g) in order to sustain the development of European SMEs (6) which have funded in this new way of diversification (production of 10-15 g fillets for consumption markets corresponding to 100-150 g fish). Presently, the juveniles availability is very low and limited to the annual cycle of reproductive period which occurs in early spring. Moreover, the quality of supplied juveniles is very variable. Thus, to support the sustainable development of Eurasian perch production, a R & D project is proposed to help the setting of a hatchery — nursery activity that other SMEs wish to develop. In order to respond to the demand, the following objectives have been identified:

1) the optimisation of the broodstock management considering environmental, nutritional and population variables: (i) to obtain delayed (extension of the natural reproductive period) and out-of-season spawning, (ii) to reduce breeders mortality during the spawning period and (iii) to improve the control of gametes and larval quality. At this level, a specific action will be conducted on the cryopreservation of Eurasian perch semen for artificial reproduction. This objective will require multifactorial and multidisciplinary studies;

2) the development of protocols for the production of juveniles population with improved potentialities (females monosex, Perca fluviatilis x Perca flavescens hybrids, triploids);

3) an economical study to define the cost of production of juveniles using different rearing systems (semi-intensive in ponds and intensive in tanks) and considering different socio-economic contexts.

Partners

• UNIVERSITE HENRI POINCARE	France
• WAGENINGEN IMARES	The Netherlands
• FONDEN BORNHOLMS LAKSEKLAEKKERI	Denmark
• ESOX	France
• GEBR. DIL IMPORT-EXPORT B.V.	The Netherlands
• RYBARSTVI NOVE HRADY S.R.O.	Czech Republic
• PDS IRISH WATERS PERCH LTD	Ireland
• LUCAS PERCHES	France
• THE UNIVERSITY OF NAMUR, UNIT OF RESEARCH IN ORGANISMIC BIOLOGY	Belgium
• LIEGE UNIVERSITY	Belgium
• UNIVERSITY OF SOUTH BOHEMIA	Czech Republic

PROTENCH: Intensive and sustainable culture of the freshwater species

Call number:	FP6-2002-SME-1	*DG responsible:*	DG RTD
Contract number:	512575	*Total Project Cost:*	1.900.000,00
Contract type:	SMEs-Co-operative research projects	*EC Contribution:*	941.823,00
		Actionline:	Co-operative Research (all areas of science and technology)
Starting Date:	01/01/2005		
Duration (months):	26	*Keyword:*	Aquaculture / Production Methods & Systems
Project website:	http://www.akvaplan.niva.no/projects/summaries/aquaresearch/Craft%20PROTENCH.asp		

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Many regions of Europe have a continental aquatic medium, very appropriated for the culture of autochthones cyprinid fishes, as tench. This fish is appreciated in Europe as a refined dish in the restaurant, a piece of angling and an ornamental fish. In the food market, it has an important potential as a consumer-friendly product, due to its excellent flavour. Tench has been cultivated by natural reproduction system in the ponds of Central and Eastern Europe for more than 500 years. The natural reproduction cycle of tench makes this fish not available in the market all along the year, because of its limited spawning period, between May and August. Moreover, its semi-intensive production cannot avoid that: (i) large number of them die in the first year, (ii) growing is very slow at first and (iii) they spawn for the first time not before their fourth year.

The development of an intensive tench culture (inducing the reproduction during the whole year and optimising both survival and growth of juveniles) is largely dependent on reproduction issues (seasonality of spawning, asynchronous spawning), feeding affairs, and environmental factors. In order to create an optimum procedure for intensive production of tench, RTD partners will study:

1) the method to assure a good rate of continuous fry production (reproduction and nursery aspects);

2) more adequate food composition;

3) a protocol to guarantee the survival and adequate growth rate of juveniles and;

4) better conditions to commercialise them.

The culture of tench presents some advantages, due to its low necessities: it is a fish able to live with low level of oxygenation, and to bear high densities. The implantation of an inten-

sive culture of tench responds to the need of promoting and diversifying the freshwater aquaculture, increasing the sustainable production of a wide range of species. Moreover, this will contribute to the creation of stable employment in rural depressed regions.

Partners

• PHARMA DRUG DISCOVERY DEVELOPMENT AG	Austria
• EMERGENTEC BUSINESS ANALYTICS GMBH	Austria
• ENVICARE ENGINEERING GMBH	Austria
• PLAY — VEREIN ZUR FURDERUNG VON DJ- UND CLUBKULTUR	Austria
• EV GROUP	Austria
• AQUACONSULT ANLAGENBAU GMBH	Austria
• DIPL.ING.ANDREAS MOSER	Austria
• CONFEDERATION OF EUROPEAN PAPER INDUSTRIES	Belgium
• IONIC SOFTWARE SA	Belgium
• EUROPEAN FERTILIZER MANUFACTURERS ASSOCIATION	Belgium
• ASSOCIATION POUR LA PROTECTION DES CULTURES (EUROPEAN CROP PROTECTION ASSOCIATION), AISBL	Belgium
• COMITE DES ORGANISATIONS PROFESSIONNELLES AGRICOLES/CONFEDERATION GENERALE DE LA COOPERATION AGRICOLE	Belgium
• TECHNOPOLIS	Belgium
• JOANNEUM RESEARCH FORSCHUNGSGES.M.B.H.	Austria

RACEWAYS: A hyper intensive fish farming concept for lasting competitiveness and superior production

Call number:	FP6-2003-SME-1	*DG responsible:*	DG RTD
Contract number:	16869	*Total Project Cost:*	1.401.200,00
Contract type:	SMEs-Co-operative research projects	*EC Contribution:*	890.700,00
		Actionline:	Co-operative Research (all areas of science and technology)
Starting Date:	01/05/2006		
Duration (months):	24	*Keyword:*	Aquaculture / New Rearing Technologies
Project website:	http://www.akvaplan.niva.no/projects/summaries/aquaresearch/Craft%20raceways.asp		

Coordinator Mr Imsland Albert
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The project will provide a scientific rationale for the establishment of a cost-effective rearing system (the Shallow Raceway System) and effective husbandry strategies for several highly priced cultured fish species. As the rearing system can be combined with recirculation systems, the concept will promote aquaculture in regions otherwise impedimented from this industry. The new farming concept will significantly reduce the overall logistic needs with respect to buildings and water supply system and through its compactness and extended automation. The new concept may in fundamental ways open up for a new era in fish farming in Europe by substantially reducing start-up costs and operational costs. Due to the compactness, these farms can be building blocks in Industry Parks for Aquaculture. It will also be able to exploit almost unused resources like effluent heated water from a variety of industries and ground well water with a wide range of salinities. To ensure rapid industrial benefit and exploitation of the achievements, several European industrial farmers, culturing a wide range of species, will participate in the project. Subsequently the hyper-intensive technology may be implemented in commercial-scale by the SMEs involved and among other enterprises throughout Europe. The wide scope for further increase in productivity should prevent outsourcing of the aquaculture industry to low-cost countries. A priority object is to develop lower input, resource-saving, farming systems for delivering safer, healthier and more varied foodstuff that respond to consumer expectations. In response to this objective the proposed project aims at developing a new and sustainable compact hyper-intensive production system for enhanced land-based aquaculture covering the whole production chain.

Partners

• AKVAPLAN-NIVA	Norway
• LLYN AQUACULTURE LTD	United Kingdom
• A COELHO E CASTRO LDA	Portugal
• FISKELDI EYJAFJARDAR LTD	Iceland
• HLYRI LTD	Iceland
• TIMAR CULTURES EM AQUA LDA	Portugal
• TUSTNA KVEITEFARM ASA	Norway
• *AQUACRIA PISCICOLAS SA*	Portugal
• UNIVERSITY OF PORTSMOUTH	United Kingdom
• CENTRO INTERDISCIPLINAR DE INVESTIGACAO MARINHA E AMBIENTAL, UNIVERSIDADE DO PORTO	Portugal
• TECHNICAL UNIVERSITY OF CATALONIA (UNIVERSITAT POLITECNICA DE CATALUNYA)	Spain

SAMANTHA: Safety intelligent fisheries product traceability management throughout the supply chain

Call number:	FP6-2002-SME-1	*DG responsible:*	DG RTD
Contract number:	6040	*Total Project Cost:*	1.631.297,00
Contract type:	SMEs-Co-operative research projects	*EC Contribution:*	843.200,00
		Actionline:	Co-operative Research (all areas of science and technology)
Starting Date:	01/12/2004		
Duration (months):	22	*Keyword:*	Seafood
Project website:	http://samantha.moviquity.com/		

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SAMANTHA aims at providing a system which will enable the traceability of products, based on the ability to identify them uniquely at any point in the supply chain. The small and medium sized fisheries determine the size of a batch, which is identified uniquely thanks to a RFID tag containing the required information. For many European SMEs, and even more those included in coastal regions in some specific sectors like the fishing industry present in this consortium, it is of utmost importance to be able to control and manage effectively products and goods traceability throughout the supply chain, not only because they have to observe EC directives regarding certification of goods and consumers health, but also because those halfway points are the object of many black market activities which are definitely harmful both for the industry and consumers. SAMANTHA addresses the deserved resources management and control, accounting for an intelligent streamline of the traceability supply chain processes.

Partners

• APIF MOVIQUITY S.A.	Spain
• TECNOLOGIAS Y SERVICIOS AGRARIOS, S.A.	Spain
• ARIADNA SERVICIOS INFORMATICOS S.L.	Spain
• OSA|HING PER SCITUM	Estonia
• AQUAPRI DENMARK A/S	Denmark
• GRUPO CIE S.L	Spain
• TRACEALL LIMITED	United Kingdom
• C-TRACE LIMITED	United Kingdom
• TECHNICAL RESEARCH CENTRE OF FINLAND	Finland

SPIINES 2: Sea Urchins in Integrated Systems. Their Nutrition and roe Enhancement

Call number:	FP6-2002-SME-1	*Total Project Cost:*	970.641,00
Contract number:	512627	*EC Contribution:*	806.314,00
Contract type:	SMEs-Co-operative research projects	*Actionline:*	Co-operative Research (all areas of science and technology)
Starting Date:	01/09/2005	*Keyword:*	Aquaculture / Production Methods & Systems
Duration (months):	27		
DG responsible:	DG RTD		

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Sea urchin roe is a luxury food product. However the wild stocks of edible urchins are now seriously depleted because of over fishing. Wild harvested sea urchins now typically have low roe content and are of a very poor or variable roe colour, further devaluing the product. The biological basis for culture of sea urchins has been established but the developing industry is now meeting particular constraints. These are: (i) the lack of DIETS which improve roe colour, while maintaining the other quantity and consistency parameters demanded by the market (flavour, texture, quantity); (ii) the lack of GROW-OUT TECHNOLOGY to reduce time to market and (iii) the lack of HARVEST PROTOCOLS positively influencing shelf-life and product quality. SPIINES 2 addresses these constraints by:

1) uniting the leading SMEs in sea urchin culture in Europe with experienced researchers who are best able to assist them;

2) focusing on the two most commonly fished, farmed and consumed sea urchin species in Europe;

3) investigating roe colour, which is a critical factor in the commercial product; poor or variable gonad colour at point of sale has a detrimental effect on the value in all species. The project will investigate the pigment (carotenoid) content of sea urchin roes to facilitate the design of sea urchin diets containing pigments from natural sources (eg microalgae). The diets will be species specific and improve roe content and colour;

4) innovations in grow-out technology; the culture systems proposed in this research are all integrated, linking sea urchin culture to that of other species with environmental and economic advantage;

5) developing protocols for microbial food safety that will further enhance the competitiveness and market compliance of the product.

While helping fulfil the aims of the Strategy for the Sustainable Development of European Aquaculture this research will also help relieve the pressure on the remaining, vulnerable wild urchin populations. The research will have a positive impact on other sectors; e.g. sea-food retailers, animal-food manufacturers, food processing and transport sectors, and will be of socioeconomic benefit to rural maritime communities dependent on aquaculture.

Partners

• LOCH DUART LIMITED	United Kingdom
• DUNMANUS SEAFOODS LIMITED	Ireland
• BODO KRAKEBOLLEKLEKKERI BKK AS	Norway
• SEAOR MARINE ENTERPRISES LTD	Israel
• HOGSKOLEN I BODO	Norway
• IAIN MACKINNON	United Kingdom
• ISRAEL OCEANOGRAPHIC AMP LIMNOLOGICAL RESEARCH	Israel
• SCOTTISH ASSOCIATION FOR MARINE SCIENCE	United Kingdom
• UNIVERSITE JOSEPH FOURIER	France

SPONGES: Sustainable production, Physiology, Oceanography, Natural products, Genetics and Economics of Sponges

Call number:	FP6-2003-SME-1	*DG responsible:*	DG RTD
Contract number:	17800	*Total Project Cost:*	1.999.790,00
Contract type:	SMEs-Co-operative research projects	*EC Contribution:*	1.441.901,00
		Actionline:	Co-operative Research (all areas of science and technology)
Starting Date:	01/11/2005		
Duration (months):	24	*Keyword:*	Aquaculture / Production Methods & Systems
Project website:	http://www.sponges.nl		

Coordinator Prof. Müller Werner E.G.
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Many marine sponges contain natural compounds that have potential interest to society. Limited possibilities to supply these compounds from natural resources often delays or even stops further development of a product after its initial discovery. In the SPONGES project, systems and processes for the cultivation of marine sponges and subsequent recovery of their natural products will be developed in order to create a stable and sustainable supply and reduce pressures on natural resources. Sponges are regarded as extremely difficult to culture, most likely as a result of our limited knowledge on the biology of these animals. The SPONGES consortium represents a combination of expertise that is unique in the world and the project is one of the most comprehensive research efforts ever to tackle the persisting challenge of growing sponges in tanks. The main objectives of SPONGES are:

1) sponge culture to obtain sponge natural products. Culture methods to be developed within SPONGES include techniques on three different levels of technological complexity: (i) sea based culture; (ii) land-based culture in tanks using natural seawater; (iii) closed land-based culture systems. These are the most challenging techniques to develop in terms of technological complexity, but also the most desired techniques with respect to control of production processes. Hence, a major part of the research efforts within SPONGES will be dedicated to the establishment of these systems, which include both the cultivation of functional sponges in enclosures and the cultivation of sponge primmorphs (cellular aggregates obtained from dissociated cells) in bioreactors;

2) understanding sponges physiology, ecology and genetics. An upgrade of our fundamental understanding of sponges is needed to improve our abilities to farm these animals. In SPONGES, ecological and physiological aspects are studied. The knowledge obtained will be converted into system engineering and process optimization. In addition, the genetic background of growth and secondary metabolism of sponges are studied in order to rationalize strategies to improve culture techniques;

3) process design and economic perspectives. In order to achieve the main goal — commercial sponge cultivation — the optimized basic procedures need to be up-scaled and validated. Market analyses will be executed and business plans will be presented for each individual technique developed as well as for the integrated sponge culture technology. The project will strongly improve the competitive position of Europe in marine biotechnology and is expected to generate new products for the market.

Partners

• INSTITUT FUR PHYSIOLOGISCHE CHEMIE, ABTEILUNG ANGEWANDTE MOLEKULARBIOLOGIE, JOHANNES GUTENBERG UNIVERSITAT	Germany
• UNIVERSITEIT WAGENINGEN	The Netherlands
• PHARMA MAR SA	Spain
• BIOTECMARIN GMBH	Germany
• TALLINN UNIVERSITY OF TECHNOLOGY	Estonia
• PORIFARMA	The Netherlands
• INSTITUTE RUDJER BOSKOVIC	Croatia
• KLINIPHARM GMBH	Germany
• SCAN MESSTECHNIK GMBH	Austria
• FRITZ-HABER-INSTITUT DER MAX-PLANCK-GESELLSCHAFT	Germany
• STICHTING KONINKLIJK NEDERLANDS INSTITUUT VOOR ONDERZOEK DER ZEE	The Netherlands
• DEPARTMENT OF CLINICAL MEDICINE, SECTION FOR NEUROLOGY, UNIVERSITY OF BERGEN, NORWAY	Norway
• CENTRO DE BIOLOGIA MOLECULAR SEVERO OCHOA, CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS	Spain

STUNFISHFIRST: Development of prototype equipment for humane slaughter of farmed fish in industry

Call number:	FP6-2002-SME-1	*Total Project Cost:*	1.982.898,00
Contract number:	512991	*EC Contribution:*	1.128.158,00
Contract type:	SMEs-Co-operative research projects	*Actionline:*	Co-operative Research (all areas of science and technology)
Starting Date:	01/01/2005	*Keyword:*	Aquaculture / New Rearing Technologies
Duration (months):	24		
DG responsible:	DG RTD		

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In the European Union, demands for humane methods to convert live-farmed fish into food are increasing. The overall objective of the project is therefore to develop prototype equipment for humane slaughter of the selected farmed fish species, namely eel (Anguilla anguilla), tilapia (Oreochromis niloticus), sea bass (Dicentrarchus labrax) and turbot (Psetta maxima). Humane slaughter involves stunning (rendering unconscious without avoidable stress prior to killing). Feasibility criteria rule out individual handling of the concerned species. The aim is therefore to develop prototype equipment for electrical stunning, as this can be applied to batches of fish in water. The proposed project will:

- model electrical stunning so that the required parameters for effective stunning with highquality standards can be predicted for the selected fish species and other species;
- establish requirements for stunning of the species with respect to product quality and welfare;
- design and build three prototypes (one for each species) for electrical stunning;
- study power-saving techniques to facilitate implementation of electrical stunning by small to medium-sized enterprises (SMEs);
- test the prototypes of SMEs with respect to product quality, welfare and operational characteristics.

The project proposal is submitted under the thematic programme 'Food quality and safety' (area 5.4.6, Safer and environmentally friendly production methods and technologies and healthier foodstuffs). A priority in this area is that consumers require healthy, safe and high quality food. With a focus on food production systems that are tending towards those which are more sustainable, more environmentally and welfare friendly, and which have lower requirements for inputs. Following the fork-to-farm approach, research on production meth-

ods should aim to meet these consumer requirements. The approach in the proposed study follows the fork-to-farm approach, as consumers and food retailers are increasingly demanding humane methods (i.e. welfare-friendly) to convert live farmed fish into food. Various studies have established that the application of humane methods has a positive effect on fish flesh quality, especially freshness, which is regarded as an essential quality attribute by consumers.

Partners

• RESEARCH INSTITUTE FOR ANIMAL HUSBANDRY	The Netherlands
• MAATSCHAP JANSSEN EN VAN MARIS	The Netherlands
• SEAFARM BV	The Netherlands
• TURBARD IATHAR CHRONAMARA TEO	Ireland
• VIVEIRO VILA NOVA SA	Portugal
• NOORDZEE SU URUENLERI	Turkey
• ACE AQUATEC	United Kingdom
• SPECIALIST WELDING SERVICES LTD.	United Kingdom
• VISKWEKERIJ ROYAAL B.V.	The Netherlands
• ANOVA FOOD BV	The Netherlands
• WAITROSE LTD.	United Kingdom
• ISIDRO DE LA CAL-FRESCO, S.L.	Spain
• RIJPELAAL B.V.	The Netherlands
• ALTERRA B.V.	The Netherlands
• UNIVERSITY OF BRISTOL	United Kingdom
• SILSOE RESEARCH INSTITUTE	United Kingdom

SUBFISHCAGE: Development of a cost effective submersible fish cage system

Call number:	FP6-2002-SME-1	*DG responsible:*	DG RTD
Contract number:	508463	*Total Project Cost:*	1.365.604,00
Contract type:	SMEs-Co-operative research projects	*EC Contribution:*	705.414,00
		Actionline:	Co-operative Research (all areas of science and technology)
Starting Date:	15/10/2004		
Duration (months):	24	*Keyword:*	Aquaculture / New Rearing Technologies
Project website:	http://www.subfishcage.com/wip4/		

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Aquaculture constitutes 17 % of the volume and 27 % of the value of the total fisheries in the European Union; however, this varies within the different regions in Europe. The value is currently EUR 2 500 million per year. However, in the last decade, the annual growth rate of EU aquaculture of 3,4 % has been slower than the world average of 11 %. The progress in fish farming has been good, but is now tending to slow down. To continue to be active in the market, as well as increase the annual growth rate of aquaculture, this industry needs to innovate and develop new and cost-effective production methods compared to the current method of production; there is also a need to address the main challenges this aquaculture industry faces, including space, harmful algae blooms, eutrophication, escapees, alien species and GMOs. Our idea is to develop a cost-effective submersible fish-cage suitable for open waters and unsheltered coastal areas. Using submersion technology, our SubFishCage system to be developed over the period will be able to exploit open waters and unsheltered coastal areas, and avoid threats in the surface layer of the water. These include bad weather conditions and high waves, and ice floe (in Northern waters) which can damage the installation, with consequences like escapees and alien species and GMO. In addition, submersion will make it possible to avoid the negative effects of algae and jellyfish invasions, since this does occur in the surface water layer. Moving offshore will also reduce the risk of negative effects of eutrophication. Our innovations and development routes include the following:

- A patentable deep-sea anchoring system with rotating head. An innovation consists of a deep-sea anchoring system for water depth of up to 1000 metres, with a rotating head for free rotation through 360°, and a crawfool connection between the rotating head of the anchoring system and the fish cage;
- A control system for submersion of the fish cage. An innovation consists of a control system with submersion of the fish-cage system in less than 5 minutes by controlling the water and air integrated in the floatation ring;

- A patentable net design of the fish cage system: a net design that ensures that the net representing the 'walls' of the fish cage system maintain their configuration and hence the volume of the fish cage during quick submersion and high-speed water currents. This is ensured by the integration of the net to the flotation ring, representing a major structural component in the fish-cage system and the weight system, representing the other major structural component for maintaining configuration.

Partners

• GIGANTE OFFSHORE AS	Norway
• STIFTELSEN TEKNOLOGISK INSTITUT	Norway
• SAEPLAST DALVIK EHF	Iceland
• REFA MED S.R.L.	Italy
• IMENCO AS	Norway
• BTT AUTOMATYKA SP.Z O.O.	Poland
• LANEX A.S.	Czech Republic
• PERA INNOVATION LIMITED	United Kingdom

TURPRO: Biological optimisation and development of processing methods for turbot farming

Call number:	FP6-2002-SME-1	*DG responsible:*	DG RTD
Contract number:	508070	*Total Project Cost:*	1.500.160,00
Contract type:	SMEs-Co-operative research projects	*EC Contribution:*	750.000,00
		Actionline:	Co-operative Research (all areas of science and technology)
Starting Date:	01/09/2004		
Duration (months):	25	*Keyword:*	Aquaculture / Production Methods & Systems
Project website:	http://www.akvaplan.niva.no/projects/summaries/aquaresearch/TURPRO.asp		

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A sustainable production of turbot will be dependent on a year-round supply of juveniles reared in intensive land-based systems at high densities. To effectively exploit such systems it is necessary to obtain detailed knowledge on the impact of key rearing factors (temperature, photoperiod and water quality) on growth performance, food conversion efficiency, age at first maturity and fish welfare. The current proposal will, through a series of small- and large-scale experiments, provide the turbot aquaculture industry with a strategy that will significantly improve growth, reduce maturation and elucidate the impact of critical water quality parameters. It is foreseen that this will reduce production cost per kg market sized fish. In addition the current proposal will investigate new processing methods especially designed for turbot, where the aim is to improve fish yield and flesh quality. The project will investigate and develop:

1) optimal temperatures for growth throughout the ongrowing phase;

2) production advantages of step-wise temperature regulation as compared to a constant temperature regime. Potential benefits on growth from using extended photoperiods;

3) potential effects of environmental manipulations in the early juvenile phase on subsequent growth and maturation in the commercial ongrowing phase;

4) water quality requirements of juvenile turbot reared at high densities;

5) improved processing methods aiming at improved production yield and flesh quality.

TURPRO aims at the development of new and sustainable production systems for enhanced production of turbot, covering the whole production chain including profitability, sustainability, product quality, employment, animal health and welfare.

Partners

• LLYN AQUACULTURE LTD	United Kingdom
• A COELHO E CASTRO LDA	Portugal
• ECOMARES GMBH & CO. KG	Germany
• SAEBYLI HF	Iceland
• NETHERLANDS INSTITUTE FOR FISHERIES RESEARCH	The Netherlands
• UNIVERSITY OF BERGEN, DEPARTMENT OF FISHERIES AND MARINE BIOLOGY	Norway
• ZEELAND VIS BV	The Netherlands
• AKVAPLAN-NIVA	Norway
• SILFURSTJARNAN HF	Iceland

SME-2: Collective Research (all areas of science and technology)

List of projects

- AQUAETREAT
- CORALZOO
- CRAB
- CRUSTASEA
- FINE FISH
- FRESHLABEL
- SPIES-DETOX
- SUSTAINAQUA

AQUAETREAT: Improvement and innovation of aquaculture effluent treatment Technology

Call number:	FP6-2002-SME-2	*DG responsible:*	DG RTD
Contract number:	500305	*Total Project Cost:*	1.761.931,07
Contract type:	SMEs-Co-operative research projects	*EC Contribution:*	1.760.709,00
Starting Date:	15/05/2004	*Actionline:*	Collective Research (all areas of science and technology)
Duration (months):	36	*Keyword:*	Aquaculture / New Rearing Technologies
Project website:	http://www.aquaetreat.org		

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The AquaEtreat project examines the feasibility of developing and implementing cost-effective systems for the treatment of aquaculture farms effluents and the valorisation and reuse of the products and by-products.

The systems will be designed according to defined parameters and installed in 3 different aquaculture entities. Their efficiency to prevent aquatic pollution will be verified by the characterisation of water and waste and also of the recipient ecosystem. Finally, the system output products and by-products will be fully characterised, defined and their possible re-use exploited. The research will be approached through a series of interdisciplinary and interconnected work packages that will contribute to the investigation of the different multidisciplinary aspects of the project's subject (technological, biological, physiological, ecological, environmental and economic).

Within the project's activities, a pivotal position is occupied by a specific training programme for SME managers, technicians and young researchers; this is to be accompanied by a capillary plan for the transfer of innovative skills and technology to European farmers. The dissemination and training activities of the project, which are within the responsibility of the FEAP, will result in the training of skilled managers and technical staff of the European aquaculture SMEs in the fields of water treatment, water reuse, by-product valorisation, environmental impact of the farming activities.

Finally, the possibility to identify specific intervention points and protocols for water use and the reduction of pollution should permit the definition of Best Management Practises for intensive fish farming that could be implemented within European guidelines and standards.

Partners

• FEDERATION OF EUROPEAN AQUACULTURE PRODUCERS	Belgium
• STM AQUATRADE S.R.L	Italy
• MARIBRIN S.R.L.	Italy
• HOGHOJ DAMBRUG I/S	Denmark
• COMITE INTERPROFESSIONNEL DES PRODUITS DE L'AQUACULTURE	France
• INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	France
• INSTITUTE OF GRASSLAND AND ENVIRONMENTAL RESEARCH	United Kingdom
• UNIVERSITY OF WALES	United Kingdom
• DIPARTIMENTO DI SCIENZE E TECHNOLOGIE, BIOLOGICHE ED AMBIENTALI, UNIVERSITA DEL SALENTO	Italy

CORALZOO: The development of an SME-friendly European breeding program for hard corals

Call number:	FP6-2003-SME-2	*DG responsible:*	DG RTD
Contract number:	12547	*Total Project Cost:*	3.224.182,40
Contract type:	SMEs-Co-operative research projects	*EC Contribution:*	2.610.278,10
		Actionline:	Collective Research (all areas of science and technology)
Starting Date:	01/06/2005		
Duration (months):	48	*Keyword:*	Aquaculture / Production Methods & Systems
Project website:	http://coralzoo.aquaculture-online.info		

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As a result of an increased public interest in marine life, a growing number of zoos and public aquaria try to display live corals in their marine exhibitions. In contrast to the commercial sector of marine ornamental trade, which is still largely dependent on collections from the wild, it is the policy of zoos and aquaria to display organisms that originate from sustainable inland breeding facilities. The CORALZOO project aims to improve inland breeding and husbandry methodologies for corals, to be applied by zoos, public aquaria and also by the ornamental trade. There are three specific goals:

(1) to acquire the protocols for sexual and asexual coral breeding in captivity, including breeding and feeding techniques and induction of natural coral colony morphogenesis;

(2) to improve coral husbandry by: (i) developing generic bioassays to evaluate biotic and abiotic husbandry parameters and to monitor coral health, (ii) elaborating methods for identification and treatment of coral diseases, (iii) optimisation of transport and acclimation practices;

(3) to train the SME's staff with coral breeding and husbandry protocols and methodologies.

The CORALZOO project is therefore the first comprehensive approach that makes use of molecular biology, mathematical, toxicological and nutritional tools for the development of unique breeding protocol for corals in captivity. This will enable the SMEs to establish large stocks of coral colonies (the asexual approach) that represent a high genetic variability (the sexual approach) and exhibit natural growth forms. The results of the present work will support the whole industrial sector in Europe, will exacerbate European competitiveness and will facilitate cooperation in research activities between the European SMEs in this sector.

Moreover it will strongly contribute to the environmental protection of wild corals: the zoos will become self-supporting and the trade will become sustainable.

Partners

• UNIVERSITEIT WAGENINGEN	The Netherlands
• RED SEA CORALS	Israel
• BURGERS ZOO	The Netherlands
• *EMIH*	*United Kingdom*
• EUROPEAN ASSOCIATION OF ZOOS AND AQUARIA	The Netherlands
• ASTRIDPLAZA NV	Belgium
• COSTA EDUTAINMENT S.P.A.	Italy
• ISRAEL OCEANOGRAPHIC AMP LIMNOLOGICAL RESEARCH	Israel
• DRESDEN UNIVERSITY OF TECHNOLOGY	Germany
• CONSORZIO NAZIONALE INTERUNIVERSITARIO PER LE SCIENZE DEL MARE	Italy

CRAB: Collective Research on Aquaculture Biofouling

Call number:	FP6-2002-SME-2	*DG responsible:*	DG RTD
Contract number:	500536	*Total Project Cost:*	2.222.049,00
Contract type:	SMEs-Co-operative research projects	*EC Contribution:*	1.528.479,00
		Actionline:	Collective Research (all areas of science and technology)
Starting Date:	20/06/2004		
Duration (months):	36	*Keyword:*	Aquaculture / New Rearing Technologies
Project website:	http://www.crabproject.com		

Coordinator Ir. Mengelers Jan H.J.
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Surfaces immersed in the aquatic environment become biofouled when unwanted aquatic organisms such as barnacles, tubeworms and seaweed settle and grow on those surfaces. Biofouling is a complex and recurring problem in all sectors of the European fish-farming industry. Problem areas include biofouling on:

INFRASTRUCTURE: immersed structures such as cages, netting and pontoons; equipment and structures such as pipelines, pumps, filters and holding tanks.

STOCK SPECIES: farmed species, particularly shellfish like mussels, scallops, oysters etc.

Uncontrolled biofouling leads to significantly increased maintenance costs and production losses (low growth/poorer quality).

The objective of the CRAB project is to develop effective biofouling management strategies for the aquaculture industry. The project will review current fouling control techniques and then select and optimise suitable strategies to combat biofouling in aquaculture. The following antifouling methods and strategies are covered: (i) biological control (using natural grazers such as sea-urchins to control biofouling); (ii) new materials such as non-toxic antifouling coatings; (iii) electrical methods generating biocides (Cl-) or pH shifts; (iv) new shellfish handling and immersion techniques; (v) optimised cleaning techniques, for example using enzyme technology to weaken the bond between biofouling and stock organisms.

The project requires collaboration between aquaculture workers and RTD experts including material scientists, biologists, engineers, managers and trainers to achieve:

1) Assessment of Requirements & Selection of Strategies;

2) Development and Modification of Technology;

3) Laboratory Testing;

4) Farm Trials Programme;

5) Risk Assessment: Environmental and Economic;

6) Dissemination: Fouling Control Guidelines & Recommendations.

A key ambition is to increase the knowledge base of the European aquaculture community. By informing farmers about the importance and extent of biofouling at a local regional level combined with effective training of management tools will give farmers the skills and know-how to make informed appropriate choices for their farming situation. Effective control of the biofouling problem is expected to reduce annual production costs throughout the industry by 5-10 % and secure the quality of product.

Partners

• DE NEDERLANDSE ORGANISATIE VOOR TOEGEPAST-NATUURWETENSCHAPPELIJK ONDERZOEK 'TNO'	The Netherlands
• FEDERATION OF EUROPEAN AQUACULTURE PRODUCERS	Belgium
• EUROPEAN AQUACULTURE SOCIETY	Belgium
• FISKERI- OG HAVBRUKSNAERINGENS LANDSFORENING	Norway
• IRISH SALMON GROWERS ASSOCIATION	Ireland
• BORIS NET COMPANY LTD	United Kingdom
• MATERIALS INNOVATION CENTRE	The Netherlands
• BOEMLO SKJELL AS	Norway
• GLOBAL AQUAFISH S.L.	Spain
• KINGS LYNN FISHING INDUSTRY CO-OPERATIVE LTD	United Kingdom
• VAL AKVA AS	Norway
• PROMOCIONES MARSAN S.L	Spain
• CUDOMAR S.L	Spain
• ALEVINES Y DORADAS SA	Spain
• VIVEIROS ANA MANJUA, UNIPESSOAL LDA	Portugal
• QUINTA FORMOSA	Portugal
• JAMES NEWMAN	Ireland
• FASTNET MUSSELS	Ireland
• AQUATT UETP LIMITED	Ireland
• CURRYGLASS ENTERPRISES LTD	Ireland
• SAGREMARISCO-VIVEIROS DE MARISCO LDA	Portugal
• THE UNIVERSITY OF NEWCASTLE	United Kingdom
• NATIONAL UNIVERSITY OF IRELAND, CORK — UNIVERSITY COLLEGE CORK	Ireland

CRUSTASEA: Development of best practice, grading & transportation technology in the crustacean fishery sector

Call number:	FP6-2004-SME-COLL	*DG responsible:*	DG RTD
Contract number:	30421	*Total Project Cost:*	2.564.698,00
Contract type:	SMEs-Co-operative research projects	*EC Contribution:*	1.726.015,00
		Actionline:	Collective Research (all areas of science and technology)
Starting Date:	01/09/2006		
Duration (months):	36	*Keyword:*	Fisheries / Food Quality
Project website:	http://www.crustasea.com		

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The Collective project CrustaSea will improve the infra-structure of the crustacean fishery sector and start the process of improving level of innovation and exploitation of technology in relation to global competitors. As a result, it is expected to increase our share in global market by improving crustacean quality, efficiency, and reduce costs. To fulfil this objective the sector needs to innovate and develop new and cost effective production methods through the whole value chain. The main objective is therefore to reduce mortality and loss in quality after capture and to expand the market opportunities for live crustaceans. The idea is to design a new technical solution for grading, holding & transport of live crustaceans and to facilitate development of new protocols and systems for handling, storage and transportation of live crustaceans through the complete value chain. In order to achieve this, the following knowledge and technological capabilities will need to be developed: (1) enhanced understanding of specific biological requirements of specific crustacean species (Edible crab and European lobster) and the physical factors (particularly water quality) that impact onto their health, growth and survival; (2) enhanced understanding related to handling, storage and transportation of live crustaceans in terms of how to improve survival and quality, and hence add value to the sectors of crustacean fisheries, and in the near future of aquaculture; (3) development of a patentable, cost effective crustacean grading unit for objective grading of such species into different qualities based on meat content; (4) development of a patentable transportation technology consisting of intelligent transportation boxes with a floodable system for flushing the live crustacean animals.

Partners

• NORSKE SJOMATBEDRIFTERS SERVICEKONTOR	Norway
• STIFTELSEN TEKNOLOGISK INSTITUT	Norway
• SAEPLAST DALVIK EHF	Iceland
• KILLYBEGS ELECTRICAL REFRIGERATION SERVICES LTD	Ireland
• CENTRO TECNOLOGICO DEL MAR-FUNDACION CETMAR	Spain
• SAMTOK FISKVINNSLUSTODVA / FEDERATION OF ICELANDIC FISH PROCESSING PLANTS	Iceland
• ISUMAR SRL	Italy
• HITRAMAT AS	Norway
• HEATHER JANE LIMITED	Ireland
• MOREFORSKNING	Norway
• SAMSTARFSNEFND HASKOLA ISLANDS OG VESTMANNAEYJABAJAR / VESTMANNAEYJAR RESEARCH CENTRE	Iceland
• WELSH FEDERATION OF FISHERMENS ASSOCIATIONS LIMITED	United Kingdom
• ASSOCIACAO DOS COMERCIANTES DE PESCADO DO NORTE, CENTRO E SUL DE PORTUGAL	Portugal
• INSTITUTO NACIONAL DE INVESTIGACAO AGRICOLA E PESCAS — INIAP/IPIMAR	Portugal
• VINNSLUSTODIN HF	Iceland
• ADVANCED DIGITAL DESIGN S.A.	Spain
• ANFACO	Spain
• PERA INNOVATION LIMITED	United Kingdom

FINE FISH: Reduction of malformations in farmed fish species

Call number:	FP6-2003-SME-2	*DG responsible:*	DG RTD
Contract number:	12451	*Total Project Cost:*	4.789.849,00
Contract type:	SMEs-Co-operative research projects	*EC Contribution:*	2.066.704,80
Starting Date:	17/10/2005	*Actionline:*	Collective Research (all areas of science and technology)
Duration (months):	36	*Keyword:*	Aquaculture / Production Methods & Systems
Project website:	http://www.piscestt.com/finefish/default_en.asp		

Coordinator Mr Hough Courtney
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The project aims to generate new practical knowledge on how to reduce the incidence of malformations in the major fish species used in European aquaculture production. Malformed individuals appear in variable and unpredictable numbers in farmed stocks in warm and cold waters, and entails severe losses. The similarity of malformation symptoms across fish species and culture environments implies a general effect of rearing conditions and a wide scope research effort is required when seeking to find the causes. Available scientific knowledge and practical experience on causes of malformation problems led to the following focus areas: rearing temperatures, with emphasis on early life stages; nutrition, with focus on nutritional quality and impact on bone mineralization of both starter and grower diets; and tank environment, including gas supplementation and hydrodynamics. The species to be investigated are Atlantic salmon, cod, rainbow trout, sea bass and sea bream, thus covering most of the European aquaculture production. A series of experimental studies will seek to clarify the impact of the experimental factors, aimed to provide practical guidelines on how to avoid malformations. The experimental fish will be subject to thorough examination, using practical diagnostic procedures and supplementary studies on disease mechanisms, utilizing state-of-the-art methods in morphological as well as molecular sciences. The project will combine hands-on experience and scientific know-how through interaction between SMEs, the IAG and research scientists, in order to ensure that the project addresses the RTD requirements of the industry. The results will be subject of wide dissemination efforts to each element of the European fish-farming sector and the scientific community. The network of the FEAP will disseminate results, develop the web-based information, and a program of collective training of SME personnel is foreseen.

Partners

• FEDERATION OF EUROPEAN AQUACULTURE PRODUCERS	Belgium
• HELLENIC CENTER FOR MARINE RESEARCH	Greece
• CENTER OF MARINE SCIENCES OF ALGARVE	Portugal
• VIVEIRO VILA NOVA SA	Portugal
• PEPITE S.A.	Belgium
• PROFUNDA AS	Norway
• FERME MARINE DE DOUHET	France
• AQUASEARCH OVA	Denmark
• TINAMENOR SA	Spain
• BOLAKS AS	Norway
• BROW WELL FISHERIES LTD	United Kingdom
• ANDROMEDA SA	Greece
• PANITTICA PUGLIESE SPA	Italy
• AKVAFORSK (INSTITUTE OF AQUACULTURE RESEARCH AS)	Norway
• VIVIERS DE FRANCE	France
• INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	France
• ISRAEL OCEANOGRAPHIC AMP LIMNOLOGICAL RESEARCH	Israel
• ROYAL VETERINARY COLLEGE	United Kingdom
• LABORATORY FOR MANUFACTURING SYSTEMS AND AUTOMATION / UNIVERSITY OF PATRAS	Greece
• INSTITUT NATIONAL DE LA RECHERCHE AGRONOMIQUE	France

FRESHLABEL: Integrated Approach to enable Traceability of the Cooling Chain of Fresh and Frozen Meat and Fish Products by means of Taylor-made Time/ Temperature Indicators

Call number:	FP6-2003-SME-2	*DG responsible:*	DG RTD
Contract number:	12371	*Total Project Cost:*	2.318.663,80
Contract type:	SMEs-Co-operative research projects	*EC Contribution:*	1.545.186,30
Starting Date:	15/09/2005	*Actionline:*	Collective Research (all areas of science and technology)
Duration (months):	36	*Keyword:*	Seafood
Project website:	http://www.freshlabel.net/		

Coordinator Mr Mlodzianowski Werner
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The consumption of chilled and frozen foodstuffs within the EC is tremendously growing whereas food safety and control are of great concern for the whole consumer community. Furthermore, a new EC Directive regulating the traceability of the cold chain of food products has been adopted in 2005. This Regulation forces the introduction of Community controls of the treatment of foodstuffs. The freshness or the spoilage of chilled and frozen meat and fish products is mostly related to temperature conditions during transport and storage. Along the logistic chain of the products the cumulative degree of degradation of the products is due to breaks in the cold-chain. Even if all actors involved in the manufacturing and distribution chain of food products are taking all precautions, the concerned IAGs of the food producing industries in Europe are convinced that only the wide spread application of reliable, irreversible Time-Temperature Indicators (TTIs) which can record and display the break of the storage conditions provides the monitoring of the real state of freshness along the product's life. At the same time, the application of TTIs are a comprehensive approach to assure food safety and public confidence, allowing transparency of all actions connected with the logistic chain, maximum information in understandable form, effective traceability of all kinds of foodstuff and will thus be a suitable standardised measure. Against this situation, the proposing IAGs intend to take an integrated and more proactive approach to the problem: the aim is to optimise TTIs for specific products of the European meat and fish industry and to encourage and train their members in the respective application. The outcome of the FRESHLABEL project will be the visualisation of the quality and safety of meat and fish products by means of joint application of TTIs. The second aim is to increase the European consumer's confidence in food.

Partners

• PURON AG	Germany
• AQUACONSULT ANLAGENBAU GMBH	Austria
• LIAISON CENTRE FOR THE MEAT PROCESSING INDUSTRIES IN THE EU	The Netherlands
• SNIV-SSYNDICAT NATIONAL DE L INDUSTRIE DES VIANDES	France
• NORSKE SJOMATBEDRIFTERS SERVICEKONTOR	Norway
• BUNDESVERBAND DER DEUTSCHEN FISHINDUSTRIE UND DES FISCHGROSSHANDELS E.V.	Germany
• FEDERACION CATALANA DE INDUSTRIAS DE LA CARNE	Spain
• FRESHPOINT QUALITY ASSURANCE LTD	Israel
• HEINRICH ABELMANN GMBH FISCHEINKOST	Germany
• WINDAU GMBH AND CO KOMMANDITGESELLSCHAFT, FLEISCHWARENHERSTELLUNG	Germany
• KUOPION KALATUOTE OY	Finland
• COVIAL S.A.	France
• MYRSZKYLAN SAVUSTAMO OY	Finland
• CENTRO FRIGORIFICO CONSERVERO	Spain
• INTERFISH AQUACULTURE SA	Greece
• BUDERSVERBAND DER DEUTSCHEN FLEISCHWAREINDUSTRIE E.V.	Germany
• REMO BRODR A/S	Norway
• ANFACO	Spain
• NATIONAL TECHNICAL UNIVERSITY OF ATHENS	Greece
• INSTITUTE OF GENETICS UNIVERSITY OF BONN	Germany
• TECHNICAL RESEARCH CENTRE OF FINLAND	Finland

SPIES-DETOX: Active biological monitoring and removal of toxins in aquaculture ecosystems and shellfish — including the development of a Solid-Phase In-situ Ecosystem Sampler and detoxification of shellfish

Call number:	FP6-2004-SME-COLL	*DG responsible:*	DG RTD
Contract number:	30270	*Total Project Cost:*	2.965.575,40
Contract type:	SMEs-Co-operative research projects	*EC Contribution:*	2.066.704,80
		Actionline:	Collective Research (all areas of science and technology)
Starting Date:	01/07/2006		
Duration (months):	36	*Keyword:*	Seafood / HAB / Fisheries / Aquaculture
Project website:	http://www.spies-detox.eu		

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The objectives of the project are:

a) to investigate new methods using solid phase adsorption for detection of algal toxins (amnesic shellfish poisoning (ASP), paralytic shellfish poisoning (PSP) and diarrheic shellfish poisoning (DSP) toxins) in the water column; this may serve as early toxin contamination warning mechanisms for areas important to shellfish harvesting;

b) to develop new techniques to combine solid phase adsorption toxin detection methods and molecular probes in real-time remote samplers, leading to rapid methods of detection of specific species of toxic phytoplankton;

c) to develop cost effective equipment that will combine the solid phase adsorption and probe technology into useable management and quality control tools for the industry;

d) to investigate the use of different protocols to wash ASP (and other algal) toxins from contaminated shellfish during processing;

e) to investigate the bacterial degradation of algal toxins and the use of microencapsulated bacteria to depurate these toxins from shellfish;

f) to set up new industry protocols designed to use latest Quality Control technology and set up a training regime, that can be used to bring the necessary skills to industrial users and to educate new researchers.

Partners

• ORKNEY FISHERIES ASSOCIATION	United Kingdom
• FISHERIES RESEARCH SERVICE	United Kingdom
• CENTRAL SCIENCE LABORATORY	United Kingdom
• CLEW BAY MARINE FORUM LTD	Ireland
• ASSOCIATION OF SCOTTISH SHELLFISH GROWERS	United Kingdom
• BIOMARIN VEKST	Norway
• SYNDESMOS ELLINON MYDOKALLIERGITON OSTRAKOKALLIERGITON (GREEK FEDERATION OF SHELLFISH PRODUCERS)	Greece
• HAVBRUKSKOMPANIET AS	Norway
• HVALERSKJELL AS	Norway
• KILLARY FJORD SHELLFISH LTD	Ireland
• APPLIED ENZYME TECHNOLOGY LIMITED	United Kingdom
• KVITSOY EDELSKJELL AS	Norway
• ANFACO	Spain
• SCOTTISH ASSOCIATION FOR MARINE SCIENCE	United Kingdom
• UNIVERSIDAD DE SANTIAGO DE COMPOSTALA	Spain
• NATIONAL UNIVERSITY OF IRELAND, GALWAY	Ireland
• BIOSENSE LABORATORIES A/S	Norway
• ARISTOTELEIO PANEPISTIMIO THESSALONIKIS — ARISTOTLE UNIVERSITY OF THESSALONIKI	Greece

SUSTAIN AQUA: Integrated approach for a sustainable and healthy freshwater aquaculture

Call number:	FP6-2004-SME-COLL	*DG responsible:*	DG RTD
Contract number:	30384	*Total Project Cost:*	3.301.492,56
Contract type:	SMEs-Co-operative research projects	*EC Contribution:*	1.252.461,70
		Actionline:	Collective Research (all areas of science and technology)
Starting Date:	11/09/2006		
Duration (months):	36	*Keyword:*	Aquaculture / Production Methods & Systems
Project website:	http://www.sustainaqua.org		

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The overall objective of the project is to expand the knowledge base of the European freshwater aquaculture by:

1) encouraging the development towards an environmental sound and healthy, and at the same time economic viable and social accepted freshwater aquaculture;

2) expanding the knowledge base and the commercial image of the European freshwater aquaculture farmers by training them in: (i) diversifying their markets/ products/ services (e.g. through diversification of fish species, innovative by-products as valuable resources for the chemical, the cosmetic, the energy or the food industry); (ii) improving their product quality (taste and compounds; reduction of medicaments and antibiotics) and with this consumers confidence and acceptance; (iii) improving their production process efficiency and profitability;

3) improving farmers ability to compete with low-cost aquaculture products from Asia, Latin America and the Caribbean;

4) responding to European and national legal and customers (supermarkets, individuals) requirements related to product quality, and environmental and health issues;

5) providing a high nutrition value for the consumer (fish quality);

6) creating more employment especially in rural areas, and throughout the whole aquaculture production chain;

7) strengthening the sustainable development of rural areas through sustainable energy, water and nutrient management,

In order to meet the general and specific objectives of the project, the following main activities are foreseen within the project:

1) five different case studies in Hungary, Poland, the Netherlands, Denmark and Switzerland, will identify different options for upgrading existing aquaculture farms in the direction of product diversification, quality improvement, and optimisation of production processes;

2) the evaluation of the research results transferability to other European freshwater aquaculture farms will prove the practical application and overall potential of SustainAqua;

3) the consortium intends to train more than 10,000 aquaculture farmers via workshops and e-learning seminars. Special training material will be developed in ten different languages;

4) the consortium will develop a practical implementation guide for the European Aquaculture farmers, including market and legal requirements, benefits, risks and costs of the different research modules, technical information, information about measurable success criteria and parameter, information about Codes of Conducts and Sustainable Quality Standards, recommendations how to prepare for upcoming environmental and health legislations and consumers requirements etc.

5) each participating Association will install regional contact points as individual advisory platforms for aquaculture farmers;

6) the consortium will present the project results on different workshops, conferences, in newsletters and magazines, and via the SustainAqua webpage. Additionally it will contact potential customers, related research projects and other stakeholders in order to support clustering activities;

7) the consortium intents to scientifically contribute to the development of the Europe-wide discussed sustainable quality standards for freshwater aquaculture and to the implementation of the Codes of Conducts for responsible fisheries (FAO) and for European Aquaculture (FEAP) as it pertains to water use and quality, food, feeding, and nutritious and diverse products of highest quality.

Based on the project results, the consortium will give recommendations for necessary further research steps.

Partners

• PURON AG	Germany
• UNIVERSITEIT WAGENINGEN	The Netherlands
• DANISH INSTITUTE FOR FISHERIES RESEARCH	Denmark
• INTERNATIONAL ORGANISATION FOR THE DEVELOPMENT OF FISHERIES IN EASTERN AND CENTRAL EUROPE	Denmark
• VISKWEKERIJ ROYAAL B.V.	The Netherlands

• SZARVASI AKVAPARK EGYES|LET (AKVAPARK ASSOCIATION)	Hungary
• HALASZATI ES ONTOZESI KUTATO INTEZET	Hungary
• *INTERNATIONAL ECOLOGICAL ENGINEERING SOCIETY*	Switzerland
• AQUABIO TECH INNOVIA LIMITED	Malta
• POLISH ACADEMY OF SCIENCES, INSTITUTE OF ICHTHYBIOLOGY AND AQUACULTURE	Poland
• VERBAND DER DEUTSCHEN BINNENFISCHEREI E.V.	Germany
• VATTENBRUKARNAS RIKSFORBUND	Sweden
• POLSKIE TOWARZYSTWO RYBACKIE, ODDZIAL HODOWCOW RYB LOSOSIOWATYCH	Poland
• ORGANIZACION DE PRODUCTORES PISCICULTORES	Spain
• OESTERREICHISCHER FISCHEREIVERBAND	Austria
• SU URUNLERI TANITIM DERNEGI	Turkey
• THE DANISH AQUACULTURE ORGANISATION	Denmark
• TEICHWIRTSCHAFT THOMAS KAINZ	Austria
• ARANYPONTY HALASZATI RT.	Hungary
• HERMANN RAMEIL E.K.	Germany
• HODOWLA RYB 'SALMO'	Poland
• LIMAN ENTEGRE BALIKCILIK SANAYI VE TICARET LIMITED SIRKETI	Turkey
• MARTIN-LUTHER-UNIVERSITAT HALLE-WITTENBERG	Germany
• JIHOCESKA UNIVERZITA V CESKYCH BUDE JOVICICH	Czech Republic

Block 2: Structuring the ERA

Research and Innovation

Human resources & mobility (Marie Curie actions)

Research infrastructures

Science and society

Deep sea trawler in Nord Gascogne

Research and Innovation

Trout assay
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INNOVATION-5: Stepping up economic and technological intelligence

List of projects

- ICEMAKER

ICEMAKER: Development of a low cost, low power consumption system for manufacturing ozonised fluid ice for fishing, via an absorption system

Call number:	FP6-2003-INNOV-1	*DG responsible:*	DG RTD
Contract number:	508726	*Total Project Cost:*	1.701.802,00
Contract type:	SMEs-Co-operative research projects	*EC Contribution:*	397.007,50
Starting Date:	01/11/2004	*Actionline:*	Stepping up economic and technological intelligence
Duration (months):	24		
Project website:	http://cric-projects.com/front/index.jsp?idProject=6	*Keyword:*	Seafood

Coordinator Mr Guerrero Josi
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The research work proposed in the project will aim at developing a low cost ice generating system, which will require low energy consumption for its running and which will be more reduced in size, thus more suited to the needs of small and medium sized fishing vessels: The energy required for the system will be obtained by taking advantage of the heat off the engine via an absorption process. By using such a system it is possible to recover and reuse the thermal energy which is emitted into the atmosphere to produce ice, thus avoiding the consumption of fuel. In order to generate ice, seawater which has been previously ozonised, will be used thus favouring the conservation of the fish. The ozone is generated on board via an electrochemical process. The system will generate liquid ice. Compared with other ice production systems, the machinery in this system will be of a reduced size and will have a lower product ion and installation cost. The ice will have a greater thermal transfer, will not harm or damage the skin of the fish, will be transportable via pipes, can be and stored in tanks. A prototype system will be built and validated in a real environment and tested out at sea in order to monitor and improve it performance.

Partners

• PIASA ENGINEERING AND TRADING S.A	Spain
• CENTRE DE RECERCA I INVESTIGACIO DE CATALUNYA, S.A	Spain
• AQUABIO TECH LIMITED	Malta
• E.C.T. OFFSHORE SERVICE AB	Sweden
• INDUSTRIA TECNICA VALENCIANA,SA	Spain
• DENIZ KORUMA MERKEZI	Turkey
• OREMAR	Spain
• MATHIASSEN MEK. VERKSTED AS	Norway
• INTEGRAL ENERGIETECHNIK AG	Germany
• FELTALALOI ES KUTATO KOZPONT KFT	Hungary
• HRS SPIRATUBE SL	Spain
• DOULOPOULOS SHIPYARDS LTD	Greece
• PERA INNOVATION LIMITED	United Kingdom
• VORTEX SYSTEMTECHNIK GMBH&CO.KG	Germany
• BALIKILER DENIZ URUNLERI URETIMI TURIZM ITH. IHR.VE LTD.STI.	Turkey

Human resources & mobility (Marie Curie actions)

MOBILITY-1

MOBILITY-2

MOBILITY-4

Researchers in lab

MOBILITY-1: Host-driven actions

List of projects

- AQUALABS
- ECOSUMMER
- GYROSCOPE
- PARAQUAM
- PATHMEDA

AQUALABS: Advanced Laboratory Training Courses in Aquaculture for Early-Stage Researchers

Call number:	FP6-2002-MOBILITY-4	*DG responsible:*	DG RTD
Contract number:	13325	*EC Contribution:*	760.610,44
Contract type:	Marie Curie	*Actionline:*	Series of events (SCF)
Starting Date:	01/12/2004	*Keyword:*	Aquaculture / Dissemination — Synthesis — Prospective
Duration (months):	24		
Project website:	http://www.aquatt.ie/index.php/87/aqualabs/		

Coordinator Dr Burnell Gavin
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AQUALABS consists of seven events: six state-of-the-art advanced courses for early-stage researchers emphasising the acquisition of practical skills and incorporating a substantial element of hands-on laboratory and field experience, with the seventh event being an innovative multidisciplinary workshop. Each training course is a collaborative effort between four or more European universities, facilitating up to 30 participants at centres recognised for expertise. Each course will consist of three periods: 1. Preparation: centralised Internet-based system; 2. Training: 5 to 7 days of intensive training (lectures, practical experience, field trips); 3. Sustainability: tutorial support; online assessment.

Training course titles: (1) Quality of Fish Products, (2) Molecular Biology and Ecology, (3) Design and Operation of Recirculation Technologies, (4) Aquatic Animal Disease Diagnostics, (5) Freshwater Aquaculture and the Environment, (6) Fish Welfare. The series of events will conclude with the Early-Stage Researchers Workshop, held in conjunction with the largest European Aquaculture industry tradeshow and conference for added value. The workshop aims will be three-fold:

1. Examine scientific content (relative to course title), prediction of future needs;
2. Review of current and potential future research issues;
3. Acquisition of non-research competencies.

The workshop will enable researchers to develop synergies, collaborate and, in particular, allow early-stage researchers to engage in debates regarding the sustainable and ethical development of the sector whilst developing complimentary skills required for a successful research career. Coordination by AquaTT, a European network for education and training, will ensure cost effective, efficient management, publicity and dissemination. AQUALABS targets early-stage researchers working in aquaculture. However, the multidisciplinary nature of the courses will appeal to scientists from related fields.

Partners

• AQUATT UETP LIMITED	Ireland
• UNIVERSITEIT WAGENINGEN	The Netherlands
• RESEARCH INSTITUTE FOR FISHERIES AQUACULTURE AND IRRIGATION	Hungary
• INSTITUTE OF APPLIED BIOTECHNOLOGY, UNIVERSITY OF KUOPIO	Finland
• THE UNIVERSITY OF STIRLING	United Kingdom
• UNIVERSITA DEGLI STUDI DELL'INSUBRIA	Italy
• NATIONAL UNIVERSITY OF IRELAND, CORK — UNIVERSITY COLLEGE CORK	Ireland

ECOSUMMER: ECOsystem approach to SUstainable Management of the Marine Environment and its living Resources

Call number:	FP6-2004-MOBILITY-2	*DG responsible:*	DG RTD
Contract number:	20501	*EC Contribution:*	2.207.520,23
Contract type:	Marie Curie	*Actionline:*	Marie Curie Host Fellowships — Early Stage Research Training (EST)
Starting Date:	01/01/2006		
Duration (months):	48	*Keyword:*	Fisheries / Ecosystem Approach
Project website:	http://www.abdn.ac.uk/ecosummer		

Coordinator Mr Stevenson-Robb Frederick
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There is an increasing need for the adoption of an ecosystem approach to the exploitation on marine resources, to promote, ecological, environmental, economic and social sustainability and preserve biodiversity. The next generation of marine scientists will need to be fully trained in these concepts. A consortium of eight internationally-recognised universities and marine science institutes in UK, Spain and Greece offers early stage training in a range of topics related to the project theme (e.g. life history biology, population, community and ecosystem ecology, immunology, physiology, molecular genetics, stock assessment, fishery and coastal zone management, fisheries economics, physical oceanography and marine GIS), with particular emphasis on an ecosystem approach to sustainable management of living resources. There partners are University of Aberdeen (including Oceanlab, Lighthouse field stations and the Scottish Fish Immunology Research Centre, UK), Fisheries Research Services Marine Laboratory (UK), Scottish Association for Marine Sciences (UK) Institute of Marine Biological Resources (Greece), Centro Oceanografico de Vigo (Spain), University of Vigo (Spain), University of Aegean (Greece) and Instituto de Investigaciones Marinas (Spain). The proposed project will run for 4 years and offer training periods of 3 to 6 months, with trainees encourage choosing projects involving stays at more than one partner centres. The partnership has extensive research experience and an excellent track record in training early stage researchers, with full quality assurance provisions in place. Training will include a strong element of core transferable sills as well as specialist training. Supervision will be provided by acknowledged experts in each field and trainees have access to a range of specialist facilities including research vessels, landers, ROVs, as well as fully-equipped state-of-the-art laboratory, computing and library facilities.

Partners

• THE UNIVERSITY COURT OF THE UNIVERSITY OF ABERDEEN	United Kingdom
• FISHERIES RESEARCH SERVICE	United Kingdom
• HELLENIC CENTER FOR MARINE RESEARCH	Greece
• UNIVERSIDAD DE VIGO	Spain
• INSTITUTO ESPANOL DE OCEANOGRAFIA	Spain
• SCOTTISH ASSOCIATION FOR MARINE SCIENCE	United Kingdom
• PANEPISTIMIO AIGAIOU	Greece
• CENTRO DE BIOLOGIA MOLECULAR SEVERO OCHOA, CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS	Spain

GYROSCOPE: A multidisciplinary approach to host-shifting and invasive potential by gyrodactylid parasites

Call number:	FP6-2004-MOBILITY-3		cable-joanne-dr.html
Contract number:	30018	*DG responsible:*	DG RTD
Contract type:	Marie Curie	*EC Contribution:*	330.107,92
Starting Date:	01/05/2006	*Actionline:*	Marie Curie Host Fellowships — Transfer of knowledge (TOK)
Duration (months):	48		
Project website:	http://www.cardiff.ac.uk/biosi/contactsandpeople/stafflist/a-d/	*Keyword:*	Aquaculture / Disease

Coordinator Mr Jones Geraint
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In a global economy, the transfer of parasites to novel hosts can pose a major threat to both farmed and wild animal stocks. The effects of parasite invasion can have significant impacts on rural economies and biodiversity, but are difficult to evaluate in the short-term, since adaptation to new hosts occurs over an evolutionary time-scale.

The aim of this project is:

1) to study neutral genetic changes and adaptive evolution of morphology and virulence of gyrodactylid parasites associated with historical translocations of the guppy (Poecilia reticulate;
2) to design a web-based database of gyrodactylids featuring genetic, ecological, morphological and biogeographic data.

The guppy has been translocated to 40 countries worldwide over the last 75 years, resulting in the widespread introduction of non-native gyrodactylids. This group of fish-parasites consists of 20,000 species, the majority of which are still unknown to science. Gyrodactylids are renowned for their colonization abilities and pathogenicity, and one species alone, Gyrodactylus salaris has cost the Norwegian Salmon Industry more than 500 million, in 25 years. Gyrodactylids demonstrate biological plasticity including host-shifts, an evolutionary characteristic important for parasite invasion.

The project (GYROSCOPE) involves a multi-disciplinary approach, integrating morphometric, molecular systematics and experimental parasitology to identify and describe novel species, to study their invasion potential, and to evaluate DNA barcoding. Analysis is performed at three evolutionary time-scales: (i) Macroevolutionary — natural range (5MYA), (ii) Mesoevolutionary — human introductions (75 years), and (iii) Microevolutionary — laboratory experiments (less than 10 years).

Partners

• CARDIFF UNIVERSITY	United Kingdom
• THE UNIVERSITY OF OSLO	Norway

PARAQUAM: Parasite pathogens in new species of Mediterranean aquaculture: an experimental approach

Call number:	FP6-2002-MOBILITY-3	*DG responsible:*	DG RTD
Contract number:	3175	*EC Contribution:*	287.360,00
Contract type:	Marie Curie	*Actionline:*	Marie Curie Host Fellowships — Transfer of knowledge (TOK)
Starting Date:	30/09/2004		
Duration (months):	48	*Keyword:*	Aquaculture / Disease
Project website:	http://www.ciesm.org/online/institutes/inst/Inst155.htm		

Coordinator Prof. Tomas Francisco
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Species diversification has become a major challenge to Mediterranean aquaculture. The greater amberjack Seriola dumerili is one of the 'new species' of interest for diversification. However, the development of greater amberjack farming at industrial scale is jeopardized by several highly pathogenic parasites. Gill monogeneans (Heteraxinidae) and blood flukes (Sanguinicolidae) are known to cause mass mortalities in experimental amberjack cultures. The control of these infections is hampered by the lack of knowledge about the biology of these parasites. This project will attempt to elucidate the life cycle of heteraxinid monogeneans and sanguinicolid blood flukes infecting cultured greater amberjacks, as well as to evaluate different strategies to control the infections caused by these parasites. The project includes three aspects: First, a taxonomical study of the parasites, second, a study of the development, transmission and life cycle (including the development of free living and parasitic stages and the habitat selection within the fish) and, third, an evaluation of several prophylactic and control methods (including several substances commonly used in fish cultures, such as disinfectants and anaesthetics). The results of this project will allow ascertaining the life cycle and transmission of heteraxinid and sanguinicolid parasites infecting the greater amberjack in fish farms and will suggest prophylactic and treatment methods for future application in intensive aquaculture facilities of the fish species. It is expected that this new information will serve to develop control policies, not only for aquaculture of the greater amberjack, but also for that of similar species, thus contributing to the development and diversification of Mediterranean fish farming in EU Member States.

Partners

- UNIVERSIDAD DE VALENCIA — Spain

PATHMEDA: Pathogens and parasites in Mediterranean aquaculture

Call number:	FP6-2002-MOBILITY-3	*DG responsible:*	DG RTD
Contract number:	14501	*EC Contribution:*	0,00
Contract type:	Marie Curie	*Actionline:*	Marie Curie Host Fellowships — Transfer of knowledge (TOK)
Starting Date:	01/11/2005		
Duration (months):	48	*Keyword:*	Aquaculture / Disease
Project website:	http://www.uv.es/pathmeda/		

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Research on pathogens and parasites in Mediterranean finfish aquaculture is less well advanced than in Atlantic waters. A shorter tradition of industrial aquaculture and usually weaker RTD structures in Mediterranean countries are factors probably accounting for this unbalance. Efforts to diversify Mediterranean aquaculture involve the use of new finfish species whose pathogens and parasites are still poorly known. In order to improve the knowledge of these organisms, this ToK Fellowship will develop a research programme on diagnosis and fish immune response to pathogens and parasites in Mediterranean finfish aquaculture. The objective of this ToK Fellowship is to improve the research capability of the host organization in two aspects: diagnosis and typing techniques of pathogens, particularly molecular-based, and techniques to evaluate the immune response to pathogens and parasites of finfish species of interests to Mediterranean aquaculture. The ToK Fellowship envisages a knowledge-acquisition phase where staff of the host organization will be trained at two partner organizations in diagnosis techniques, molecular typing and immunology for assessment of fish responses to pathogens and parasites. After this phase, the ToK Fellowship will develop a research programme at the host organization, where the knowledge acquired at the partner organizations will be adapted to Mediterranean finfish species. Research at the host organization will focus on developing molecular diagnosis techniques of emergent pathogens, optimising diagnosis protocols for designated pathogens and parasites, molecular typing of fish bacteria, and immuno stimulation and assessment of immune responses of Mediterranean fish species against selected pathogens and parasites. The ToK Fellowship will endeavour to promote synergies with the local aquaculture sector and to ensure that the results of the project reach potential end users: fish farmers, managers of natural resources, NGOs, and consumers.

Partners

• UNIVERSIDAD DE VALENCIA	Spain
• DEN KONGELIGE VETERINAER- OG LANDBOHOEJSKOLE	Denmark
• DEPARTMENT OF CLINICAL MEDICINE, SECTION FOR NEUROLOGY, UNIVERSITY OF BERGEN, NORWAY	Norway

MOBILITY-2: Individual-driven actions

List of projects

- ASPECT
- DNACHIP
- ECOCOD
- ERATS
- EUROFISHCODE
- FISHBONEP
- FISHIMRES
- FISHINOIDS
- INTERAM
- LIST
- MAST
- MT GENOME G. SALARIS
- OPINF
- PLAICELIFELINE
- SEDCORAL
- SQUIDMATE
- TAPAS

ASPECT: Organic warmwater fish production through activated suspension and periphyton-based ecological technology

Call number:	FP6-2002-MOBILITY-7	*EC Contribution:*	150.350,00
Contract number:	8965	*Actionline:*	Marie Curie Incoming International Fellowships (IIF)
Contract type:	Marie Curie		
Starting Date:	01/10/2005	*Keyword:*	Aquaculture / Production Methods & Systems
Duration (months):	24		
DG responsible:	DG RTD		

Coordinator Ms Ogden Jackie & Dr Little David
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The proposed research will develop an in-depth understanding of the use of natural food production to support intensive warm water culture of fish. Current aquaculture in Europe is based on carnivorous fish species, usually produced in marine cages or flow-through ponds, reliant on diets rich in marine fishmeal and oils. This causes negative impacts on surrounding ecosystems and makes the products sensitive to contamination by persistent chemicals. Tilapias, as herbivorous fish that grow well on bacterial-detrital aggregate and periphyton in their natural tropical environment, can potentially be raised in well-insulated systems in Europe based on locally produced plant-based feedstocks. Commercial systems could become part of a diversification option for organic farmers, allowing them to add value to locally grown crops and develop local niche markets for high quality, fully traceable food. The research will optimise a production system based on the principles of activated suspension (AS) and periphyton enhancement (PE) in which relatively low protein feeds can be used to raise tilapia in highly aerated tanks to maintain both feed and water quality levels. The quality and quantity of water used, natural and supplemental foods and effluents will be monitored in both AS, AS+PE and conventional recycled systems (RS). System nitrogen and energy efficiencies will be assessed for both systems and budgets derived. Environmental impacts are expected to be positive and the research outcomes to have important social and economic implications for rural areas of Europe. The research builds on the competency of the International Fellow and the host institution in the area of sustainable fish production. It is based around bringing together novel techniques that have been tested and are in use in the tropics, into a European context. The research experience should ensure valuable training in new techniques and exposure of the Fellow to more intensive approaches to fish production.

Partners

- THE UNIVERSITY OF STIRLING — United Kingdom

DNACHIP: Construction of a DNA CHIP for the identification of marine fishes, their eggs and larvae in European waters

Call number:	FP6-2002-MOBILITY-7	*DG responsible:*	DG RTD
Contract number:	3028	*EC Contribution:*	213.522,00
Contract type:	Marie Curie	*Actionline:*	Marie Curie Incoming International Fellowships (IIF)
Starting Date:	01/12/2004		
Duration (months):	24	*Keyword:*	Fisheries / Traceability

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DNA chip is a new technique in molecular biology which has innumerable applications. The proposed project an interdisciplinary research involving DNA Chip technology and Marine Science. The objective of this project is to implement DNA chip array hybridization for identification of fish species, their eggs and larvae. The ribosomal DNA (rDNA) of vertebrates is composed of three coding regions (18S, 5.8S and 28S) which evolve at relatively slow rates, external and internal transcribed spacers (5 ETS, ITSI, and ITS2) which evolve at faster rates, and their intergenic spacer (IGS) which evolve at a very rapid rate. A hypervariable region of the IGS has been identified just 3S to the 28S, which exhibits length variation in all salmonid species. This aspect of DNA sequence variation of the IGS and ITS is taken into consideration for this study. At first the nucleotide sequence of the rDNA of 50 commercially important marine fish species found in the European waters, mainly the species belonging to the Cod, Haddock, Whiting, Sole, Hake, Eel and Herring will be cloned and sequenced. In the rDNA sequence the variable and hypervariable regions of each species will be identified and the species specific oligonucleotides corresponding to that region will be chemically synthesized and using them a DNA chip will be constructed and validated. The construction of DNA chip and the other related works will be done in European Molecular Biology Laboratory in Heidelberg, Germany in Dr Ansorg's group that has good number of publications, patents in DNA microarray and also conducting a yearly training program on DNA microarray. This technology has further use in Biodiversity research, Conservation studies, Population dynamics research, examination of adultered fish food etc. Undertaking the training program by the candidate would be a new area of research in Marine Biotechnology research and will foster further research collaborations with European scientist.

Partners

- EUROPEAN MOLECULAR BIOLOGY LABORATORY — Germany

ECOCOD: Environmental control of cod dynamics

Call number:	FP6-2002-MOBILITY-5	*EC Contribution:*	18.000,00
Contract number:	515587	*Actionline:*	Marie Curie Intra-European Fellowships (EIF)
Contract type:	Marie Curie		
Starting Date:	01/11/2004	*Keyword:*	Fisheries / Interaction with Environment
Duration (months):	24		
DG responsible:	DG RTD		

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The objective of the project is to study the joint effect of density-dependent (internal) and density-independent (external or environmental) control on survival and growth of pre-recruit cod in the Barents Sea. In many terrestrial populations (e.g., voles, lemmings, lynx), the intensity of internal control can change as a function of background external variables a mechanism known as phase dependence. Similar dynamics may also be relevant for the Barents Sea cod, in which recruitment is greatly affected both by density-dependent and climate-linked forcing. We hypothesize that in cod, density-dependent effects on pre-recruitment survival change according to the level of background environmental variables. To address this hypothesis, and its relevance at a population level, we propose the use of a novel statistical formulation (i.e., a semi-parametric regression) applied to long-term data of environmental variables and cod pre-recruitment abundance. Because of its ecological and economic importance, the Barents Sea cod is an intensely monitored stock, and constitute data-rich system, well suited for this analysis. This proposal offers a unique opportunity to test, for the first time in a marine system, an innovative ecological hypothesis (i.e., phase dependence). Our results will be readily applicable to future management models that seek to improve recruitment predictions in the face of incumbent climate change. The training aspects of the proposal are intense in the field of population ecology, mathematical biology and marine ecology all relevant disciplines in the area of research that the applicant is pursuing, i.e., the field of ecological fisheries oceanography. The high profile of the host scientific and training achievements, coupled with its extensive and well established international scientific network, will provide the applicant with the necessary means to complete the present study and will greatly facilitate his long-term professional advancement in science.

Partners

- THE UNIVERSITY OF OSLO — Norway

ERATS: Ecological risk-assessment of transgenic fish

Call number:	FP6-2002-MOBILITY-6	*DG responsible:*	DG RTD
Contract number:	8141	*EC Contribution:*	178.683,00
Contract type:	Marie Curie	*Actionline:*	Marie Curie Outgoing International Fellowships (OIF)
Starting Date:	01/05/2006		
Duration (months):	36	*Keyword:*	Aquaculture / Genetics & Breeding
Project website:	http://vivaldi.zool.gu.se/Ekologi/Projects/Laxfiskgruppen/Transgenics/riskassr.htm		

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Recent advances in gene technology have been applied to create fast-growing transgenic fish, which are of great commercial interest to shorten production cycles and increase food production. However, there is growing concern over the impact escaped growth hormone (GH) transgenic fish may have on the natural environment. To predict these risks it is crucial to obtain data on the relative fitness of transgenic and non-transgenic fish under nature-like conditions. Empirical data on this is, however, lacking at present. Since transgenic fish cannot be released to the wild, studies on these fish must be carried out in specially contained laboratory facilities under simulated natural conditions. The main objective of the current proposal is to carry out such work with the goal to obtain knowledge of the potential ecological risks associated with commercial production of transgenic fish. In addition, these transgenic fish will be used both to increase our understanding of how hormones interact with the organism and its environment to regulate behaviour, and to examine evolutionary questions of why growth in nature often is below that physiologically possible. By comparing the performance of transgenic and non-transgenic fish at different life-stages and under various environmental settings, an assessment of the relative success of transgenic fish under natural conditions can be made. This information will form the base for policy decisions associated with commercial production of transgenic fish which may pose critical risks to natural populations of fish and other aquatic species in their ecosystems.

Partners

• UNIVERSITY OF GOTEBORG	Sweden
• DFO/UBC CENTRE FOR AQUACULTURE AND ENVIRONMENTAL RESEARCH	Canada

EUROFISHCODE: DNA barcodes for species identification of fish and shellfish in Europe: implementation and application in selected case-studies

Call number:	FP6-2004-MOBILITY-5	*DG responsible:*	DG RTD
Contract number:	24996	*EC Contribution:*	194.124,00
Contract type:	Marie Curie	*Actionline:*	Marie Curie Intra-European Fellowships (EIF)
Starting Date:	01/01/2006		
Duration (months):	24	*Keyword:*	Fisheries / Traceability
Project website:	http://biology.bangor.ac.uk/~bss018/grcresearch.htm		

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The Consortium for the Barcode of Life, founded April 2004, is an international initiative with the mission to explore and develop the potential of DNA-based technology (DNA barcoding) as a complementary practical tool for species identification. With EUROFISHCODE we intend to extend this approach to various case-study applications in fisheries management, environmental conservation and forensics. This project will create the backbone of a European fisheries resources database which will integrate with a global marine fish barcoding identification system. This innovative tool will be particularly powerful for species identification of eggs and larvae, and for control of fish and shellfish species used in food products. The current proposal will allow a researcher from Portugal to undertake a 2-year mobility program in the University of Wales at Bangor, UK. The applicant has a Ph.D. and has been pursuing a research career within ERA. He has 2 years of post-doctoral research experience, spent mainly in North America. This mobility proposal constitutes the fellows first opportunity to receive extensive research training in a European country other than Portugal. It is both timely and vital for the fellows prospects to reach a situation of professional maturity and independence. The applicant will diversify his experience and will acquire new skills in molecular methodology, bioinformatics and applications to core problems in environmental management of exploited resources. The host team and institution are exceptionally well equipped to fulfill the training and research needs of the applicant, based on an amalgam of the host's own expertise and network of international collaborators, stakeholders and end-users. Upon completion the applicant will emerge very competitive in the labour market and will greatly enhance his chances of establishing as an independent academic. EUROFISHCODE will contribute in various ways to the objectives of ERA and to European policies.

Partners

- BANGOR UNIVERSITY — United Kingdom

FISHBONEP: Role of Parathyroid Hormone related Protein (PTHrP) in endochondral bone development: Application as a possible marker for skeletal anomalies in fish

Call number:	FP6-2002-MOBILITY-6	*EC Contribution:*	111.339,50
Contract number:	7782	*Actionline:*	Marie Curie Outgoing International Fellowships (OIF)
Contract type:	Marie Curie		
Starting Date:	01/11/2005	*Keyword:*	Aquaculture / Production Methods & Systems
Duration (months):	18		
DG responsible:	DG RTD		

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The high incidence of larvae skeletal deformities is a significant problem in European marine aquaculture. This problem has a serious impact on the industry's productivity, on product quality and on animal welfare. The factors which may cause skeletal anomalies in fish are largely unstudied, although in tetrapods there is ample evidence that PTHrP plays a significant role in both normal and abnormal development and growth of the skeleton. Preliminary studies carried out by the CME group indicate that PTHrP may be implicated in skeletal deformities which arise as a consequence of altered chondrogenesis and calcification. Thus, the fundamental scientific objective of this project is to investigate the importance of the unique hypercalcemic factor identified in fish, PTHrP, in endochondral bone development and its application as a possible marker for skeletal anomalies in fish. This will be achieved through the application of recombinant DNA and gene transfer technology as a tool for the induction of PTHrP gene over expression in fish embryos. The present project programme will therefore aim to establish unequivocally the role of PTHrP in chondrogenesis and skeletal development and link this to skeletal abnormalities. Several objectives have been identified which will contribute to the overall achievement of the aim. Firstly, obtention of PTHrP expression construct and its microinjection into fertilized fish eggs; Secondly, assessment of the ectopic expression of PTHrP in notochord cells of fish embryos and finally, evaluation of the influence of PTHrP in the development of axial skeleton. Moreover, additional objectives of this research proposal are to promote the scientific development of the applicant and transfer the technology and knowledge acquired at the host institute during the visit to USA to the CME group at the return host institute. This will be important for the development of these groups objectives but will also benefit the whole academic community.

Partners

• CENTER OF MARINE SCIENCES OF ALGARVE	Portugal
• CENTER OF MARINE BIOTECHNOLOGY UNIVERSITY OF MARYLAND BIOTECHNOLOGY INSTITUTE	United States of America

FISHIMRES: Functional characterisation of the fish immune response to parasite

Call number:	FP6-2002-MOBILITY-5	*DG responsible:*	DG RTD
Contract number:	513978	*EC Contribution:*	21.500,00
Contract type:	Marie Curie	*Actionline:*	Marie Curie Intra-European Fellowships (EIF)
Starting Date:	01/04/2005		
Duration (months):	24	*Keyword:*	Aquaculture / Disease

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In humans, an effective defence against a particular pathogen requires a balanced differentiation between a type I and type II immune response. Prototypical type I and II immune responses are based on a different cytokine profiles in response to a pathogen. In humans, type I immunostimulator is Trypanosoma brucei and type II is Schistosoma monsoni. We propose to study type I and type II immune responses in fish (carp: Cyprinus carpio) using a trypanosome (G. borreli) and a schistosome (S. inermis) infection model. Target parasites proteins will be identified by screening their cDNA library with parasite-specific host antibodies. Recombinant target proteins expressed in bacteria, and antibodies raised against these proteins will be used to study the subsequent type of immune response. Real-time quantitative expression of type I cytokines (IL-1, TNF) and type II cytokines (IL-10, TGF) will be studied in carp leukocytes stimulated in vitro with either T. borreli or S. inermis recombinant proteins. Cytokine profiles in vivo, will be studied following infection with either T. borreli or S. inermis or following injection with their target proteins. Nitric oxide (classical activation) and arginase activity (alternative activation) of macrophages stimulated with target proteins will be taken as further markers for respectively type I or type II response in fish. Blocking studies using antibodies rose against the target proteins of both parasites aim at inhibiting specific type I/II immune reactions and will help to establish their relative importance during infection. The present project aims to increase knowledge of the fish immune system and the control of fish diseases. The research objectives will help to understand the immune response type to different pathogens. This may lead to more targeted immuno-prophylactic approaches in aquaculture, reducing susceptibility to diseases while preserving the environment.

Partners

- UNIVERSITEIT WAGENINGEN — The Netherlands

FISHINOIDS: Fish and flavonoids

Call number:	FP6-2002-MOBILITY-7	*DG responsible:*	DG RTD
Contract number:	514496	*EC Contribution:*	149.350,00
Contract type:	Marie Curie	*Actionline:*	Marie Curie Incoming International Fellowships (IIF)
Starting Date:	01/03/2005		
Duration (months):	24	*Keyword:*	Aquaculture / Disease

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With the recent ban on the use of compounds such as malachite green in food fish production, there is an urgent need to find suitable efficacious compounds to control certain fish pathogens. There is also a need to improve fish health and reduce the dependency on drugs by assessing the utility of natural products as possible replacements. One potential group, the bioflavonoids, comprise a vast array of biologically active compounds that are ubiquitous in plants. They display an incredible array of biochemical and pharmacological actions (anti-inflammatory, anti-oxidant, anti-allergic, anti-viral & anti-carcinogenic). Their use in human and veterinary medicine (e.g. to control viruses in HIV/AIDS patients, in the study of coronary and circulatory disease and, as a topical spray to control MRSA in hospitals) is being actively researched. Unfortunately, almost nothing is known of the action of bioflavonoids on the immune system of fish. The project will assess the efficacy of selected bioflavonoids, as potential biocides and immunostimulants, in their ability to control bacterial and protozoan parasitic infections following experimental challenge. The project will screen a large number of bioflavonoids in vitro against several main fish pathogens to assess their biocidal activity before testing the most promising candidates in vivo to ascertain if they also have an immunostimulatory effect. The pathogens that will be screened include the pathogenic bacteriums Vibrio anguillarum, Aeromonas hydrophila and Renibacterium salmoninarum, the causative agent of Bacterial Kidney Disease, a notifiable fish pathogen within Europe. Their efficacy against the parasitic protozoan Ichthyophthirius multifiliis one of the most pathogenic diseases of freshwater fishes will also be tested.

Partners

- THE UNIVERSITY OF STIRLING — United Kingdom

INTERAM: Larval Invertebrate Microalgal Interactions

Call number:	FP6-2002-MOBILITY-7	*EC Contribution:*	4.500,00
Contract number:	509394	*Actionline:*	Marie Curie Incoming International Fellowships (IIF)
Contract type:	Marie Curie		
Starting Date:	07/06/2005	*Keyword:*	Aquaculture / Production Methods & Systems
Duration (months):	12		
DG responsible:	DG RTD		

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The training part of the project will involve two aspects: study on intensive larval culture of the sea urchin Paracentrotus lividus and study on the impact of Amnesic Shellfish Poison (ASP) on king scallops reproductive physiology.

Firstly, the training aspect is designed to familiarize the researcher with state-of-the-art instruments and methodology on sea urchin aquaculture research and Harmful Algal Bloom (HAB) studies that are being employed at SAMS. Secondly, the researcher will bring her competence in hatchery work of aquatic species from China, and improve the spectrum and excellence of the aquaculture research that is going on at SAMS. Incoming researcher's participation of research projects will include, mainly:

1. Refinement of hatchery larval cultivation techniques of purple sea urchin, Paracentrotus lividus. The researcher will be responsible for larval cultivation, and will take part in the experiments on optimizing feed and environmental conditions for larval rearing;

2. HAB study: influence of algal toxin on king scallop, Pecten maximus. The researcher will participate in research on harmful effects of the ASP toxin on king scallop, to find out if carrying this phytotoxin will negatively affect scallops' gonad development and if exposure to the ASP toxin has an adverse effect on scallop larvae.

The incoming researcher will develop new, cuttlng-edge skills through this project, and will win better career prospects upon her return to China. Besides these, the opportunity of working in another country will raise the international profile of her career and will enable her to participate in more joint programs in the future.

Partners

- SCOTTISH ASSOCIATION FOR MARINE SCIENCE — United Kingdom

LIST: Larvae In Situ Tracking: detection and identification of early-life-stages of marine organisms using in situ hybridisation with oligonucleotide probes

Call number:	FP6-2002-MOBILITY-5	*DG responsible:*	DG RTD
Contract number:	501323	*EC Contribution:*	148.588,00
Contract type:	Marie Curie	*Actionline:*	Marie Curie Intra-European Fellowships (EIF)
Starting Date:	02/02/2004		
Duration (months):	24	*Keyword:*	Fisheries / Fish Biology

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Most deep-sea hydrothermal vent species are either sessile or have limited mobility as adults. They thus must disperse predominantly at the larval stage through the water column. The mechanisms governing larval dispersal, however, are largely unknown, making this one of the most intriguing ecological processes left unsolved at vents. Larval forms themselves are unknown, their identification being particularly difficult because few descriptions of early developmental stages were published. Many marine larvae cannot be identified to the species level on morphology only, because many diagnostic features are absent or poorly formed at early stage of development. To this date, studies using molecular methods to identify larvae involve destructive processing of the organisms. The objective of this study is to develop a method for identifying marine invertebrate larvae using in situ hybridization (ISH). ISH using oligonucleotide probes specific to rRNA would provide a unique method for identifying larvae quickly and specifically, while leaving them morphologically intact. ISH methods will be developed at the Max Planck Institute for Marine Microbiology on invertebrates (mainly polychaetes) already collected from deep-sea hydrothermal vents. Identification of vent larvae will reveal their morphology providing new and valuable information for evolutionary biology and systematics. New type of life cycle might be described, which would deeper understanding of the evolution of life cycles. This project will also provide information on dispersal during larval planktonic stage and allow a better understanding of the mechanisms governing biological communities' patterns. Improving our knowledge of larval dispersal patterns is crucial for establishing strategies for the protection of species, establishment of marine reserves, and management of commercially important shellfish and fish populations.

Partners

- FRITZ-HABER-INSTITUT DER MAX-PLANCK-GESELLSCHAFT — Germany

MAST: Microarray analysis of salmon transcriptomes: Evaluation of a large cDNA array and production of a targeted diagnostic oligonucleotide array

Call number:	FP6-2004-MOBILITY-5	*DG responsible:*	DG RTD
Contract number:	24589	*EC Contribution:*	159.046,40
Contract type:	Marie Curie	*Actionline:*	Marie Curie Intra-European Fellowships (EIF)
Starting Date:	01/02/2006		
Duration (months):	24	*Keyword:*	Aquaculture / Feed — Nutrition

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The overall goal of this project is to develop a novel molecular tool that will monitor health and performance of Atlantic salmon (Salmo salar). The tool will take the form of an oligonucleotide array for probing key elements of the transcriptome involved in polyunsaturated fatty acid metabolism, protein catabolism, responses to bacterial and viral challenge, and the process of freshwater to seawater adaptation (smoltification). These aspects of the biology/metabolism of salmon were selected on the basis that fatty acid synthesis and storage, food conversion efficiency, infectious disease and adaptation to seawater present the greatest challenges in salmon rearing systems at the present time. This Marie Curie project will focus specifically on fatty acid metabolism with the challenge being salmon grown on fish oil (FO) and vegetable oil (VO) diets, driven by the following. Fish are the only major dietary source for humans of n-3 highly unsaturated fatty acids (HUFA) including eicosapentaenoic and docosahexaenoic acids that are crucial to the health of vertebrates and, with declining fisheries, farmed fish such as Atlantic salmon constitute an increasing proportion of the fish in the human diet. However, the current high use of FO, from feed-grade fisheries, in feeds is not sustainable, and will constrain growth of aquaculture. The only sustainable alternatives to fish oils are VO, which are rich in C18 polyunsaturated fatty acids, but devoid of the n-3HUFA that is abundant in fish oils. Changes in fatty acid metabolism in salmon induced by VO replacement of FO in diets can have a negative impact on the nutritional quality of the product for the human consumer by altering flesh fatty acid composition. In addition to the development of the diagnostic array, this project also aims to identify salmon candidate genes associated with the ability to synthesis and retain n-3HUFA in the flesh, and thus provide the genetic basis for new marker-assisted selection strategies.

Partners

- THE UNIVERSITY OF STIRLING — United Kingdom

MT GENOME G. SALARIS: The mitochondrial genome of the fish parasite Gyrodactylus salaris — characterization and utility

Call number:	FP6-2002-MOBILITY-5	*DG responsible:*	DG RTD
Contract number:	501684	*EC Contribution:*	158.479,00
Contract type:	Marie Curie	*Actionline:*	Marie Curie Intra-European Fellowships (EIF)
Starting Date:	01/07/2004		
Duration (months):	24	*Keyword:*	Aquaculture / Disease

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Gyrodactylus salaris, an ectoparasitic flatworm (Platyhelmininthes Monogenea) of the Atlantic salmon, is recognised as a serious problem in all European countries with a Baltic or North Atlantic coastline. The possibility for effective control measures against G. salaris rests on reliable and practical methods of pathogen diagnosis but no strain-specific markers are available to date. Here we propose the full characterization of the mitochondrial genome of G. salaris and the closely related Macrogyrodactylus polypterus. Comparing both genomes will provide valuable information on the range of variation within the genus, allowing the selection of loci useful at the phylogenetic and population genetic level. Comparing G. salaris populations throughout the distribution range, will allow the design of diagnostic markers based on multiple SNPs. Subsequent optimisation of the SSCP reaction, in order to resolve multiple SNP sites within short mitochondrial fragments will ultimately allow rapid and reliable screening, through ABI Prism SNaPshot Multiplex genotyping. Whilst not the primary aims of the proposal, the results will serve as a basis for phylogenetics, mitogenomics and mitochondrial drug targeting. This proposal underpins an applied problem and therefore provides a real link between a modern biological (genomic) approach and an increasingly important research area worldwide, namely animal health and environmental monitoring. The proposal is founded in the fields of genomics, biotechnology as applied to (animal) health and sustainable development, providing the applicant a first rate training in a wide variety of molecular techniques.

Partners

- NATURAL HISTORY MUSEUM — United Kingdom

OPINF: The role of opioids in protective immune response of carp

Call number:	FP6-2004-MOBILITY-5	*DG responsible:*	DG RTD
Contract number:	24034	*EC Contribution:*	82.800,00
Contract type:	Marie Curie	*Actionline:*	Marie Curie Intra-European Fellowships (EIF)
Starting Date:	01/07/2006		
Duration (months):	24	*Keyword:*	Aquaculture / Disease
Project website:	http://www.cbi.wur.nl/UK/Staff/Chadzinska/		

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Allostasis, maintenance of stability through changes in an organism, is critically dependent on bi-directional communication between the neuroendocrine and immune systems. The immune and neuroendocrine systems share mediators and their receptors, and thus immune responses are reflected in neuroendocrine changes while, in turn, hormones and neuropeptides modulate immune functions. Disturbance of allostasis may have negative influence on the health status and welfare of humans/animals. There is a large body of evidence that endogenous opioids produced by activated neuroendocrine system exert a variety of effects on immune performance. Opioids can affect the immune response either directly via opioid receptors localised on leukocytes, or indirectly via activation of stress axis and sympathetic nervous system. Opioids and receptors have been identified in fish and their evolutionary relationship with mammalian factors and functions supports their essential role in neuroendocrine and immune responses. Understanding the physiological significance of this communication will allow developing efficient strategies for health control in aquaculture. This project aims to undertake a joint effort within three laboratories to perform an interdisciplinary study into the role of opioids and opioid receptors in farmed fish. Joining forces of the expert knowledge in fish immunology (Wageningen), neuroendocrinology (Nijmegen), together with the inflammation model developed in Poland will guarantee optimal conditions. The different types of opioid receptors will be characterised and influence of opiates on innate immune response and on classical stress axis will be established. The project offers a unique training opportunity in advanced molecular and cellular techniques that will be of great benefit for the applicant's research career and for establishment a firm cooperation between three European Laboratories.

Partners

- UNIVERSITEIT WAGENINGEN — The Netherlands

PLAICELIFELINE: Determination of Plaice lifetime movements in the North Sea by linking natural and electronic data records

Call number:	FP6-2002-MOBILITY-5		linking-natural-and-electronic-data-records-(plaicelifeline).aspx
Contract number:	501391		
Contract type:	Marie Curie	*DG responsible:*	DG RTD
Starting Date:	01/01/2004	*EC Contribution:*	159.046,00
Duration (months):	24	*Actionline:*	Marie Curie Intra-European Fellowships (EIF)
Project website:	http://www.cefas.co.uk/projects/determination-of-plaice-lifetime-movements-in-the-north-sea-by-	*Keyword:*	Fisheries / Fish Biology

Coordinator Dr Hunter Ewan
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We aim to describe the lifetime movements of plaice, Pleuronectes platessa, in the North Sea, by linking the geographical movements of fish tagged with electronic data storage tags (DSTs) to chemical signals simultaneously laid down in the ear-stones (otoliths) of the same fish. By linking these state of the art techniques, we aim to provide information on the population dynamics of North Sea plaice, which would be otherwis unattainable using conventional methods. DSTs allow continuous records to be made of ambient conditions experienced by free-swimming fish in their natural environment. To date, we have used tidal (depth) data to reconstruct the migrations of 165 plaice from returned DSTs, for periods of up to 512 days. Plaice independently record ambient conditions throughout their lifetime by the accretion of various chemicals on the otolith. Matching the recorded migrations with the chemical signals from the otolith may allow the retrospective positioning of the fish in space & time throughout its life. We will examine the otoliths from around 80 DST-tagged plaice, using stable isotope analysis to characterise annual migration routes. This process should for the first time allow interpretation of the migration history of the plaice prior to tagging & determination of the time and source of recruitment, thereby linking studies of pre- and post recruitment fish behaviour. By implementing this work as an intra-European fellowship, we are providing the opportunity for a researcher with a proven track record in ecology, otolithology and stable isotope analysis, to refine and develop existing techniques & to advance to the forefront of the field. The results of this study have the potential to improve the parameterisation of assessment methods currently applied in fisheries managment, and will therefore feed directly into management advice designed to promote sustainability, thereby contributing to the social and economic well-being of the EU's fishing regions

Partners

• THE CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE	United Kingdom

SEDCORAL: The Sedimentary Environment of Deepwater Corals: characterisation of a fragile marine habitat in need of conservation

Call number:	FP6-2002-MOBILITY-5	*EC Contribution:*	139.750,00
Contract number:	9412	*Actionline:*	Marie Curie Intra-European Fellowships (EIF)
Contract type:	Marie Curie		
Starting Date:	01/04/2005	*Keyword:*	Marine Environment / Fisheries / Ecosystem Functioning
Duration (months):	24		
DG responsible:	DG RTD		

Coordinator Prof. Roe Howard & Dr Masson Douglas
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Deepwater corals, such as Lophelia pertusa, are found on fascinating mound structures along the European continental margin, where they create rich ecosystems. However, several reefs appear to be damaged by deepwater trawling, and need protection. The Darwin mounds in the N Rockall Trough are the first to be protected through EU emergency measures under the Common Fisheries Policy (Aug. 2003). The province is awaiting the status of `Special Area of Conservation, to be designated by the UK government under the Habitats Directive. However, the factors influencing the distribution of deepwater corals are not well known, and the exact processes governing their growth and development are not clear. In order to support conservation measures, a better insight in these habitats is necessary. The aim of the project SEDCoral is to provide a detailed characterisation of the sedimentary environment of deepwater corals. The study will consist of the detailed documentation of the Darwin mounds and a second province of small coral mounds in the area, chosen for comparison. Focus will be placed on the sedimentological characteristics of the coral environment. The information will be integrated in a GIS database, and the results communicated towards scientific and non-scientific end-users. The project will be embedded within the FP6 Integrated Project (IP) HERMES. The issues will be tackled through the integration and detailed interpretation of existing data, and the acquisition of new specific information using high-level technology such as ROV observations and well-positioned sampling. The project outcome will reinforce European excellence in the fields of deepwater corals and continental slope sedimentology. Through the project, the researcher will obtain training at a top-class research institute, which will increase her independence and expertise. She will receive opportunities for intense networking, which will contribute to a long-lasting cooperation between different European research centres.

Partners

- NATIONAL OCEANGRAPHIC CENTRE — United Kingdom

SQUIDMATE: Testing for post-copulatory female choice in a cephalopod

Call number:	FP6-2002-MOBILITY-7	*DG responsible:*	DG RTD
Contract number:	2706	*EC Contribution:*	160.180,00
Contract type:	Marie Curie	*Actionline:*	Marie Curie Incoming International Fellowships (IIF)
Starting Date:	01/08/2004		
Duration (months):	24	*Keyword:*	Fisheries / Fish Biology

Coordinator Dr Patel Hitesh & Dr Shaw Paul
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Empirical studies and theoretical discussion in the field of sexual selection suggest that male-male competition and female choice have postcopulation equivalents in polyandrous systems. Postcopulatory processes may affect sexual selection by increasing heterogeneity of fertilisation success of males. Sperm competition, the postcopulatory equivalent of male-male competition, has broad empirical and theoretical support. Postcopulatory female choice however, has proven difficult to demonstrate and is still the subject of controversies. One form of postcopulatory female choice, where females can discriminate between and differentially utilise the sperm of different males, is called sperm choice. One way to assess if sperm choice is occurring is to investigate the mechanism by which a female differentially use sperm from various males. A few studies have reached that goal by demonstrating that female chose the sperm of unrelated male over the sperm of relatives. Unambiguous tests of whether sperm choice is or is not occurring, are needed to test the generality of this process, and therefore its importance in evolution. This proposal aims to use molecular genetic techniques to determine patterns in sperm storage and paternity of wild-caught squid, to assess whether females have the potential for sperm choice. Loliginid squid have unique advantages related to novel aspects to their biology that will permit to acquire empirical data which support or refute this hypothesis. The project will determine:1) The incidence and pattern of multiple paternity within broods; 2) If switches in paternity of embryos occurring along the length of egg strings is a consistent phenomenon in the wild; 3) If the relationship between paternity and spermatophores located within particular deposition sites indicates female sperm choice, sperm competition or random fertilisation; 4) If level of genetic similarity between a consort male and a female affect fertilisation success of the male.

Partners

- ROYAL HOLLOWAY AND BEDFORD NEW COLLEGE — United Kingdom

TAPAS: Alternative feeds in aquaculture: Transcriptome and Proteome Analyses in Salmon

Call number:	FP6-2004-MOBILITY-5	*DG responsible:*	DG RTD
Contract number:	23068	*EC Contribution:*	171.634,02
Contract type:	Marie Curie	*Actionline:*	Marie Curie Intra-European Fellowships (EIF)
Starting Date:	01/02/2006		
Duration (months):	24	*Keyword:*	Aquaculture / Feed — Nutrition

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Fish are the only major dietary source for humans of omega-3 highly unsaturated fatty acids (HUFA) including eicosapentaenoic and docosahexaenoic acids that are crucial to the health of vertebrates and, with declining fisheries, farmed fish such as Atlantic salmon constitute an increasing proportion of the fish in the human diet. However, the current high use of fish oils (FO), derived from feed grade marine fisheries, in aquaculture feeds is unsustainable, and will constrain growth of aquaculture. The only sustainable alternative to FO are vegetable oils (VO), which can be rich in C18 polyunsaturated fatty acids such as linoleic and linolenic acids, but devoid of the n-3HUFA that are abundant in fish oils. Changes in fatty acid metabolism in salmon induced by VO replacement of FO in aquaculture diets can have a negative impact on the nutritional quality of the product for the human consumer by altering flesh fatty acid composition. A greater understanding of the effects of VO replacement at a molecular level may lead to effective use of more sustainable aquaculture diets. Previous studies have shown that replacement of FO with VO leads to altered gene expression in salmon. The study aims to test three hypotheses; that changes in liver gene and protein expression, and phenotype are associated; that gene expression in non-lethally obtained samples can be related to gene expression in liver; and that variation within any population can be related to variation in expression of specific genes. The specific objectives are: 1.To determine effects of replacing dietary FO with VO on gene and protein expression in liver of salmon; 2.To determine associations between gene expression, protein expression and phenotype (as measured by flesh n-3HUFA content); 3.To compare gene expression pattern in non-lethally sampled tissues (fin clips and blood) with that of liver; 4.To determine levels of variation in gene and protein expression and phenotype within the population sampled.

Partners

- THE UNIVERSITY OF STIRLING — United Kingdom

MOBILITY-4: Return and re-integration mechanisms

List of projects

- FISH CONDITION
- GnRH SYSTEMS IN COD
- PIMAQUABI

FISH CONDITION: Effects of environmental and habitat characteristics on condition and reproduction of exploited marine fish populations

Call number:	FP6-2002-MOBILITY-11	*EC Contribution:*	25.052,00
Contract number:	510173	*Actionline:*	Marie Curie European Reintegration Grants (ERG)
Contract type:	Marie Curie		
Starting Date:	20/01/2004	*Keyword:*	Fisheries / Interaction with Environment
Duration (months):	12		
DG responsible:	DG RTD		

Coordinator Prof. Lora-Tamayo Emilio – Dr Pilar Olivar
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Despite evidence of important ecological linkages between habitat and fishery production, the management of most commercial resources worldwide has historically concentrated on assessing stock size and controlling fishing mortality. In addition, biological processes such as fish condition, fecundity and maturity, which are important features of future population success, are not commonly used to evaluate the quality of fish habitats, and are not taken into account by the current assessment methodologies of exploited fish. This project addresses new fields in fisheries biology and management, which move towards ecosystem-based approaches that strive to study and protect habitats vital to self-sustaining populations of living resources, and towards the consideration of fish physiology in fisheries assessment. Firstly, this re-integration project aims to analyse the influence of productive and structurally complex habitats (e.g. submarine canyons, the continental slope and areas influenced by river runoff) on the condition and reproductive potential of two exploited fish species. The use of fish condition to evaluate the quality of fish habitat aims to provide useful information on which fisheries managers could base decisions about the timing and location of marine protected areas, and to detect reserve effects on fish populations. Secondly, this projects aims to explore the utilisation of fish condition as an explanatory variable of reproductive potential, in order to improve future stocks assessments. These studies constitute a promising research field to help management and preservation of fishery resources, fish habitats and marine biodiversity. The proposal addresses research fields included in the FP6-thematic priority 6, which are important to management of marine resources and habitats.

Partners

- CENTRO DE BIOLOGIA MOLECULAR SEVERO OCHOA, CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS — Spain

GnRH SYSTEMS IN COD: Characterization of GnRH systems in Atlantic cod: cloning, brain distribution, and mechanisms of action

Call number:	FP6-2002-MOBILITY-11	*DG responsible:*	DG RTD
Contract number:	14883	*EC Contribution:*	40.000,00
Contract type:	Marie Curie	*Actionline:*	Marie Curie European Reintegration Grants (ERG)
Starting Date:	20/07/2005		
Duration (months):	12	*Keyword:*	Aquaculture / Genetics & Breeding

Coordinator Mrs Lien Inger Stray
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Early sexual maturation leads to a significant loss of body weight during the spawning season, and farmed cod of both sexes currently reach puberty as early as two years of age, before reaching commercial size. However, development of effective treatments to delay puberty and control spawning is hampered by the lack of basic knowledge on the regulatory mechanisms controlling pubertal development in cod, most notably the neuroendocrine control where no information is available. The main objective with this project is to characterize the different GnRH systems in the brain and pituitary of Atlantic cod, and to investigate how these are regulated. This will be done by cloning and sequencing of the different GnRH forms and their receptors, monitoring the cellular distribution and expression profiles of GnRH and their receptors in the brain and pituitary throughout pubertal development. Furthermore, to analyze the feedback mechanisms participating in the activation of the brain-pituitary-gonad axis, we will investigate how the GnRH and GnRH receptors are regulated by steroid hormone treatments. Also, a close collaborating scientist will simultaneously investigate by electrophysiological methods the cellular mechanisms involved in basal and GnRH stimulated activity of cod gonadotropes. In addition to providing new insights into the GnRH systems of a representative from the poorly studied order of gadiformes (Teleostei), this project should contribute to an improved understanding of the neuroendocrine regulation of pituitary function in teleost fish in general.

Partners

• THE UNIVERSITY OF OSLO	Norway

PIMAQUABI: Pathogens and immune response of aquacultured bivalve molluscs

Call number:	FP6-2002-MOBILITY-11		ax=ingles&princ=9&act=1&id
Contract number:	518007		menu=9
Contract type:	Marie Curie	*DG responsible:*	DG RTD
Starting Date:	15/06/2005	*EC Contribution:*	40.000,00
Duration (months):	12	*Actionline:*	Marie Curie European Reintegration Grants (ERG)
Project website:	http://patologia.iim.csic.es/grupo_patolog/index.php?idiom	*Keyword:*	Aquaculture / Disease

Coordinator Prof. Martinez Carlos
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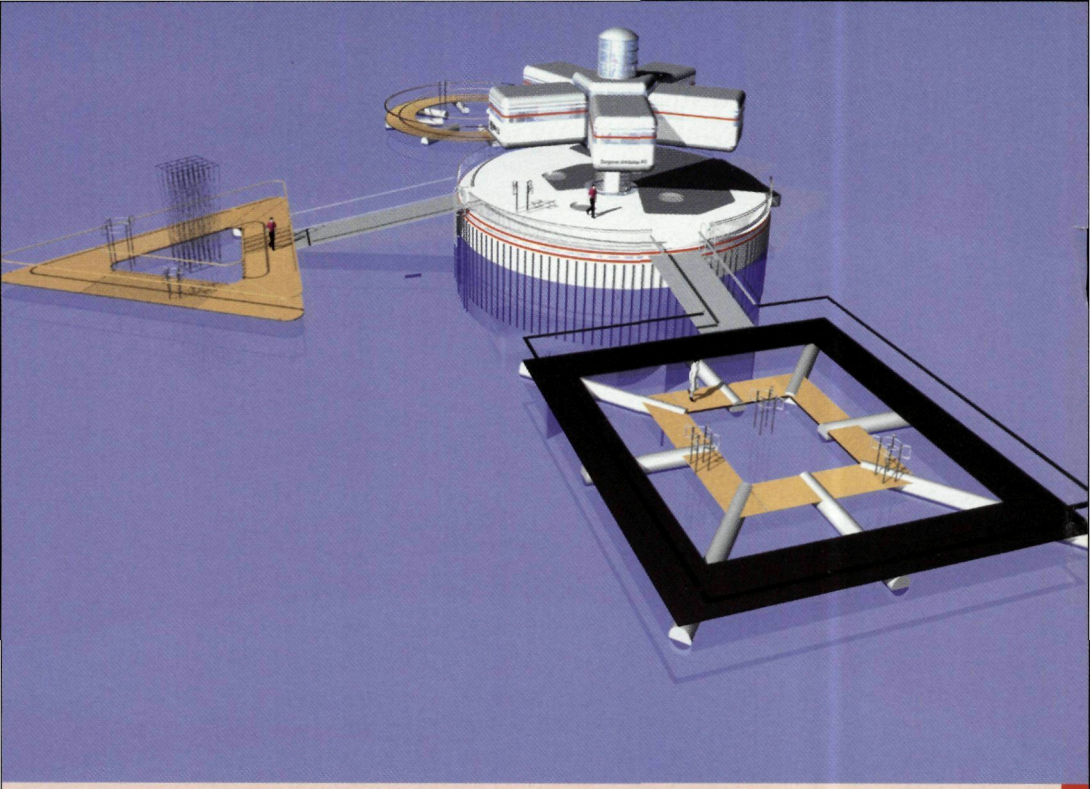
Aquaculture is growing more rapidly than all other animal food producing sectors. Bivalve culture is steadingly growing in importance in the aquaculture of many European Union Member States. However, even though several bivalve diseases produce significant economic loses, no effective tools to fight against infectious diseases are available, and the knowledge on the immune mechanisms developed against infectious is very limited. The main goal of this project is the characterization of pathology and the host-parasite relationships at ultra structural level produced by the most important pathogens identified in the aquacultured bivalve molluscs,bacteria (Vibrio sp.) and parasites (Bonamia ostreae and Perkinsus atlanticus parasites of oysters Ostrea edulisand clams Ruditapes decussatus respectively) at different times of infection. In addition, the molecular basis of mollusc immune response developed against the infections will be studied. Cellular and humoral parameters, as well as oxygen and nitrogen free radicals production and antioxidant enzymes will be characterized in vitro. The presence and location of enzymes associated to defence mechanism will be analysed by TEM immunocyto chemistry. The identification and characterization of new genes involved on the immune response of the bivalve molluscs against infections will be carried out. Once the genes are identified, recombinant proteins will be produced and their effect in bivalve mollusc immune function will be determined. The project will be centered in genes with immune relevance, specifically those involved in the expression of cytokine like molecules. The characterisation of immune genes with relevant role in immune defence can lead to identify marker genes that could later be used in the selection for resistance to the diseases of bivalve populations.

Partners

- CENTRO DE BIOLOGIA MOLECULAR SEVERO OCHOA, CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS — Spain



Research infrastructures

INFRASTR-4

INFRASTR-4: Design studies: feasibility studies and technical preparatory work for new infrastructures with European dimension

List of projects

- DESIGNACT

Sketch of the planned main Dedicated Technology Test Site at the new aquaculture engineering research infrastructure
© DesignACT - Alexandra Neyts, Leif Magne Sunde
Drawings made by Myklebust and Bergersen

DESIGNACT: Designing the Aquaculture Centre of Technology — facing the unmet needs in European aquaculture

Call number:	FP6-2003-Infrastructures-4	*EC Contribution:*	475.400,00
Contract number:	11978	*Actionline:*	Design studies: feasibility studies and technical preparatory work for new infrastructures with European dimension
Contract type:	Specific Support Action		
Starting Date:	01/04/2005		
Duration (months):	36		
Project website:	http://www.designact.org	*Keyword:*	Aquaculture / New Rearing Technologies
DG responsible:	DG RTD		
Total Project Cost:	611.002,00		

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The overall objective of the project is to provide the fundaments for a unique full-scale sea-based European Aquaculture Centre of Technology (ACT), where aquaculture stakeholders will be strongly involved both in the planning and the use of the infrastructure. The focus areas of the new infrastructure will be the development of more competitive and cost-efficient production technologies for use in aquaculture processes ranging from ongrowing at sea to slaughtering. These require technological solutions such as floating constructions, feeding instruments, manoeuvring operations, handling and transport procedures and systems for environmental monitoring. The facilities to be offered at the European ACT will be complementary to the existing aquaculture infrastructures. Its independent role in the development and testing of new technology offers the seafood producers and alternative to the commercial marked.

As a future meeting place for technology and biology, the goal of the ACT will be to seek technical solutions with direct or indirect biological impact. Based on an international inquiry involving all types of aquaculture stakeholders, an inventory will be made of infrastructure technology gaps that are currently experienced in the sector. When combining the data of the inventory with the natural conditions at the foreseen site (area of Valsneset, Mid-Norway) and the economical constraints, a sketch of the new infrastructure and a construction plan will be made. The design of the European ACT will be based on a continuous and close cooperation between technologists, marine biologists and ecologists on one side and the fish farming industry and its suppliers on the other.

Partners

• NORGES TEKNISK — NATURVITENSKAPELIGE UNIVERSITET	Norway
• SINTEF FISHERIES AND AQUACULTURE	Norway

Science and society

SOCIETY-1

SOCIETY-1: Bringing research closer to society

List of projects

- SAFMANS

'Draw a researcher'
© Ewen PIGENT - Océanopolis – Brest - France

SAFMAMS: Scientific Advice for Fisheries Management at Multiple Scales

Call number:	FP6-2003-Science-and-Society-7	*Total Project Cost:*	690.120,00
Contract number:	13639	*EC Contribution:*	690.119,00
Contract type:	Specific Support Action	*Actionline:*	Science and governance: analyse and support best practice, develop new consultation mechanisms
Starting Date:	15/04/2005		
Duration (months):	36		
Project website:	http://www.ifm.dk/safmams	*Keyword:*	Fisheries / Management
DG responsible:	DG RTD		

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SAFMAMS draws insights from existing research projects and management processes on the most useful forms of scientific advice for marine environmental management and then communicates those insights to scientists and decision-makers. The SSA will involve three basic tasks. First, we will collate information relevant to the forms that scientific advice can and should take from research projects focussed on fisheries management. Second, we will interact with seven sets of stakeholders involved in fisheries management decision-making at various scales to help us sharpen the practical lessons from what we have gathered from the research results. Third, we will carry these lessons from fisheries to the broader marine management community. The deliverables include three reviews of the implications of research results for forms of scientific advice, three best practices articles that will be the product of the interactions with the stakeholder groups, a catalogue of marine environmental management efforts that will be the basis of the network building, three policy briefs aimed at decision-makers, one of which is an article on research priorities for improving scientific advice in marine environmental management, and a book on the relationship between the geographical scale of environmental problems and the forms of scientific advice that are appropriate for addressing them

Partners

• AALBORG UNIVERSITET	Denmark
• INTERNATIONAL COUNCIL FOR THE EXPLOIRATION OF THE SEA	Denmark
• FISKERISEKRETARIATET	Sweden
• GOETEBORGS UNIVERSITET	Sweden
• DANMARKS PELAGISKE PRODUCENTORGANISATION	Denmark
• LOUGHINE LIMITED	United Kingdom
• INSTITUTE FOR FISHERIES MANAGEMENT AND COASTAL COMMUNITY DEVELOPMENT	Denmark
• ESTONIAN MARINE INSTITUTE, UNIVERSITY OF TARTU	Estonia

BLOCK 3: Strengthening the foundations of ERA

Co-ordination of research activities

Coast Guard in the North Sea

Co-ordination of research activities

Tuna fishing farm
© European Commission / Themistoklis Papaioannou

COOR-1: Coordination of national activities

List of projects

- BIODIVERSA
- BONUS
- COASTAL ERA-NET
- MARINERA
- MARIFISH

BIODIVERSA: An ERA-Net in Biodiversity Research

Call number:	ERA-NET/1/CA-SSA	*EC Contribution:*	2.837.440,00
Contract number:	517836	*Actionline:*	Networking of national or regional programmes or parts of programmes; actors: public authorities, research agencies, open call for proposals (ERA-NETs)
Contract type:	Coordination action		
Starting Date:	01/05/2005		
Duration (months):	48		
Project website:	http://www.eurobiodiversa.org		
DG responsible:	DG RTD	*Keyword:*	Marine Environment / Fisheries / Biodiversity
Total Project Cost:	2.837.440,00		

Coordinator Ms Deschamps Anne-Marie
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BIODIVERSA is an ERA Net involving 15 countries and 19 major research funding agencies in Europe with significant research funding in the field of terrestrial, freshwater and marine biodiversity. Most ERA-Net members are represented on other fora which discuss and recommend requirements for European biodiversity research: including the Convention for Biological Diversity (CBD-SBSTTA), Diversitas, the European Platform for Biodiversity Research Strategy (EPBRS) and the European Science Foundation (ESF). Recommendations from these fora are often made without a formal mechanism to ensure connection with the strategies, priorities and budgets of national research funding agencies. The aim of BIODIVERSA is to contribute to setting up such a mechanism, and its objective for the period 2004- 2008 is to achieve an efficient trans-national research cooperation in the field of biodiversity research funding. With the aim of contributing to the implementation of the EU Biodiversity Strategy, BiodivERsA will allow the funding agencies to collate existing activities, compare future strategies and recommendations of consultative bodies, and systematically explore opportunities for future collaboration. BIODIVERSA will also contribute to better coherence and increased synergies between the national programmes of cooperation with developing countries in the field of biodiversity research funding. In order to achieve this, BIODIVERSA will proceed through seven stages: (i) inventory, description and classification of biodiversity research programmes and research funding programmes of ERA-Net members; (ii) information gathering and linkage of ERA-Net members funding programmes with developing countries; (iii) identification of best practices to be compared, shared and implemented among the participants; (iv) identification of the existing opportunities for cooperation; (v) identification of administrative, legal and technical barriers to cooperation.

Partners

• INSTITUT NATIONAL DE LA RECHERCHE AGRONOMIQUE	France
• DEUTSCHES FORSCHUNGSZENTRUM FUR LUFT- UND RAUMFAHRT E.V.	Germany
• SWEDISCH RESEARCH COUNCIL	Sweden
• NEDERLANDSE ORGANISATIE VOOR WETENSCHAPPELIJK ONDERZOEK	The Netherlands
• *MINISTERO DELL'ISTRUZIONE DELLA UNIVERSITÀ E DELLA RICERCA AND CONSORZIO REATTIVITÀ E CATALISI*	Italy
• FUNDACAO PARA A CIENCA E TECNOLOGIA	Portugal
• FONDS ZUR FURDERUNG DER WISSENSCHAFTLICHEN FORSCHUNG	Austria
• MINISTERIO DE EDUCACION EY CIENCIA	Spain
• CENTRAL SCIENCE LABORATORY (DEFRA)	United Kingdom
• MINISTERE DE L'ECOLOGIE, DU DEVELOPPEMENT ET DE L'AMENAGEMENT DURABLES	France
• ENVIRONMENTAL PROTECTION AGENCY	Ireland
• MINISTRY FOR ENVIRONMENT AND WATER	Hungary
• AGENCE NATIONALE DE LA RECHERCHE	France
• EESTI TEADUSFOND SIHTASUTUS (ESTONIAN SCIENCE FOUNDATION)	Estonia
• THE SWEDISH RESEARCH COUNCIL FOR ENVIORNMENT, AGRICULTURAL SCIENCES AND SPATIAL PLANNING	Sweden
• NATURVARDSVERKET	Sweden
• NORGES FORSKNINGSRAD	Norway
• NATIONAL OCEANGRAPHIC CENTRE	United Kingdom
• BELGIAN FEDERAL PLANNING SERVICE SCIENCE POLICY	Belgium
• FONDATION EUROPEENNE DE LA SCIENCE	France

BONUS: Bonus for the Baltic Sea Science — Network of Funding Agencies

Call number:	ERA-NET/1/CA-SSA	*EC Contribution:*	3.029.453,60
Contract number:	510204	*Actionline:*	Networking of national or regional programmes or parts of programmes; actors: public authorities, research agencies, open call for proposals (ERA-NETs)
Contract type:	Coordination action		
Starting Date:	15/12/2003		
Duration (months):	48		
Project website:	http://www.bonusportal.org		
DG responsible:	DG RTD	*Keyword:*	Marine Environment / Fisheries / Ecosystem Functioning
Total Project Cost:	3.029.453,60		

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BONUS is an ERA-NET project which brings together the key research funding organisations in all EU Member States and Associate Candidate Countries around the Baltic Sea. BONUS operates in close connection with the scientific and management actors. The aim is to form a net-work and partnership of agencies which are funding research aiming at deepening the understanding of conditions for science-based management of environmental issues in the Baltic Sea. The projects will gradually and systematically create conditions for a joint Baltic Sea research and researcher training programme. The 'status quo' in ongoing research, research funding, marine research programme management and infrastructures is examined and the necessary communication and networking tools are established. The needs and conditions of a joint research programme from scientific and administrative point of view are examined. The integration of the Associate Candidate Countries to the common funding scheme is considered in one of the proposed tasks. Finally, an Action Plan for creating joint research programmes, including all jointly agreed procedures of programme management and aspects of common use of marine research infrastructure is produced. An additional activity is the development of a common postgraduate training scheme. The consortium is composed of altogether 11 partners: 10 partners from 8 countries and one international organisation. In addition, BONUS links 7 funding organisations as associated members, which increases the number on involved organisations to 18 and countries to 9.

Partners

• ACADEMY OF FINLAND	Finland
• LATVIAN COUNCIL OF SCIENCE	Latvia
• LIETUVOS RESPUBLIKOS SVIETIMO IR MOKSLO MINISTERIJA	Lithuania
• *FOUNDATION FOR STRATEGIC ENVIRONMENTAL RESEARCH*	Sweden
• RUSSIAN FOUNDATION FOR BASIC RESEARCH	Russia
• MINISTRY OF SCIENCE AND HIGHER EDUCATION	Poland
• DANISH AGENCY FOR SCIENCE TECHNOLOGY AND INNOVATION	Denmark
• EESTI TEADUSFOND SIHTASUTUS (ESTONIAN SCIENCE FOUNDATION)	Estonia
• THE SWEDISH RESEARCH COUNCIL FOR ENVIORNMENT, AGRICULTURAL SCIENCES AND SPATIAL PLANNING	Sweden
• INTERNATIONAL COUNCIL FOR THE EXPLOIRATION OF THE SEA	Denmark
• INSTITUTE OF OCEANOLOGY OF THE POLISH ACADEMY OF SCIENCES	Poland
• NATURVARDSVERKET	Sweden
• FORSCHUNGSZENTRUM JUELICH	Germany

COASTAL ERA-NET: Control Objectives And Shellfish Target Assurance Levels

Call number:	ERA-NET/1/CA-SSA	*EC Contribution:*	187.702,00
Contract number:	16189	*Actionline:*	Networking of national or regional programmes or parts of programmes; actors: public authorities, research agencies, open call for proposals (ERA-NETs)
Contract type:	Specific Support Action		
Starting Date:	16/01/2005		
Duration (months):	10		
Project website:	http://www.coastal-era.net/site/2.asp	*Keyword:*	Aquaculture / Interaction with Environment
DG responsible:	DG RTD		
Total Project Cost:	187.702,80		

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The Specific Support Action (SSA) proposal is a preparatory action to prepare an ERA-NET that concerns the cooperation and coordination of monitoring programmes (research and innovation parts) dealing with coastal water quality in shellfish growing areas. Networking will result in harmonization of the activities that guarantee consumer protection within the framework of new EU legislation concerning food safety standards and water, which include shellfish. It represents the foundation of a subsequent ERA-NET designed to improve collaboration between programme managers. The project initiates support actions for common strategic interests at both national and regional level. The project supports the specific programme 'Integrating and strengthening the foundations of the European Research Area' and the thematic priority for coordination of research activities, which can only be achieved at the European level. The proposal will achieve its objectives through a series of structured measures designed for defining the requirement for subsequent interpretation and dissemination activities. The work programme aims to compile a directory of responsibilities, create a database to combine information on existing programmes, and identify common programme topics, as well as provide a mechanism for the coordination and standardization of current coastal monitoring programmes. The terms of reference for a future European-wide network in all the countries with coastal areas involved in shellfish production will also be determined. The planned approach will deal with the problem of fragmentation inherent in current national and regional programmes. There is currently no general infrastructure that can promote transnational exchanges or provide an overview of the results generated from existing programmes. Essentially, an open network would provide a needed pool of information, as well as being a source of cooperation between the research community and the managers responsible for funding.

Partners

• INSITITUT DE RECERCA I TECHNOLOGICA AGROALIMENTARES	Spain
• INSTITUTO TECNOLOXICO PARA O CONTROL DO MEDIO MARIÑO DE GALICIA	Spain
• INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	France
• ENVIRONMENT AGENCY	United Kingdom

MARINERA: Co-ordination of National and Regional Marine RTD Activities in Europe

Call number:	ERA-NET/1/CA-SSA	*EC Contribution:*	2.954.279,20
Contract number:	515871	*Actionline:*	Networking of national or regional programmes or parts of programmes; actors: public authorities, research agencies, open call for proposals (ERA-NETs)
Contract type:	Coordination action		
Starting Date:	01/11/2004		
Duration (months):	48		
Project website:	http://euroceans.org/about/index.html	*Keyword:*	Marine Environment / Fisheries / Ecosystem Functioning
DG responsible:	DG RTD		
Total Project Cost:	2.954.279,20		

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The European Union has set out a ten-year strategy (Lisbon 2000) to make the EU the world's most dynamic and competitive knowledge-based economy by 2010. A key element of this strategy is the European Research Area (ERA) initiative. The ERA, a central pillar of this strategy, aims to create an internal market in research, restructure the European research fabric and develop a European research policy. An ERA-NET Scheme has been established, within the 6th Framework Programme, to catalyse the mobilisation of the European Research and Development sector to the Lisbon challenge. The MarinERA proposal represents the positive response of the European marine science community to this challenge. MarinERA is a partnership of the leading Marine RTD Funding Organisations in 13 European Member and Accession States, supported by the European Science Foundation Marine Board (ESF-MB). Together, these funding agencies represent an investment of circa 100 million / annum in marine research. In addition, amongst a range of observer groups, six international networks of research organisation (BONUS, EFARO, EuroGOOS, European Polar Board, IACMST, ICES) a further Member State funding agency have associated themselves with the project. The MarinERA project will (1) Map European marine RTD programmes and specialised infrastructures to contribute towards the development of the marine element of the European Research Area, facilitating the creation of an internal market and quantifying the existing European marine research capacity; (2) Facilitate the networking of Marine RTD Funding Agencies in the European Union, leading to a more cost effective and efficient use of Member State resources including scientific personnel, specialist infrastructures and planned investments; (3) Contribute to the development of a European Marine Research Policy, identifying future challenges and opportunities and the priority research programmes that need to be put in place to address / benefit from them; (4) Provide a basis for the sharing of available resources; (5) Progress the reciprocal opening of Member State Marine RTD Programmes.

Partners

• INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	France
• MINISTERIE VAN DE VLAAMSE GEMEENSCHAP, ADMINISTRATIE WETENSCHAP EN INNOVATIE	Belgium
• NEDERLANDSE ORGANISATIE VOOR WETENSCHAPPELIJK ONDERZOEK	The Netherlands
• MINISTERSTWO NAUKI I INFORMATYZACJI (MINISTRY OF SCIENTIFIC RESEARCH AND INFORMATION TECHNOLOGY)	Poland
• FUNDACAO PARA A CIENCA E TECNOLOGIA	Portugal
• MINISTERIO DE EDUCACION EY CIENCIA	Spain
• ACADEMY OF FINLAND	Finland
• MARINE INSTITUTE	Ireland
• MALTA COUNCIL FOR SCIENCE AND TECHNOLOGY	Malta
• NORGES FORSKNINGSRAD	Norway
• FORSCHUNGSZENTRUM JUELICH	Germany
• GENARAL SECRETARIAT FOR RESEARCH AND TECHNOLOGY, MINISTRY OF DEVELOPMENT	Greece
• NATIONAL OCEANGRAPHIC CENTRE	United Kingdom
• BELGIAN FEDERAL PLANNING SERVICE SCIENCE POLICY	Belgium
• FONDATION EUROPEENNE DE LA SCIENCE	France

MARIFISH: Cordination of European Marine Fisheries Research

Call number:	ERA-NET/1/CA-SSA	*EC Contribution:*	2.977.069,95
Contract number:	25989	*Actionline:*	Networking of national or regional programmes or parts of programmes; actors: public authorities, research agencies, open call for proposals (ERA-NETs)
Contract type:	Coordination action		
Starting Date:	16/01/2006		
Duration (months):	60		
Project website:	http://www.marifish.net		
DG responsible:	DG RTD	*Keyword:*	Fisheries / Ecosystem Approach
Total Project Cost:	2.977.069,95		

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MariFish will bring together the major European national funders of marine fisheries research to form an effective, working partnership. The total combined annual fisheries research budget of all partners' amounts to more than 120 million and represents a very significant European research resource and body of scientific knowledge. To achieve this aim MariFish will undertake the following key activities over a 5 year period: (1) Exchange information on current R & D/research programmes; (2) Improve practices in the planning and procurement of research through shared knowledge; (3) Identify existing regional, European and International collaboration; (4) Enhance coordination between fisheries research and other disciplines; (5) Compare and analyse national research programmes to identify areas of common interest, gaps and possible duplication; (6) Develop and commission shared research programmes; (7) Identify innovative, strategic research needs and develop a jointly funded programme.

Fishery management relies heavily on science; research makes a significant contribution to the translation of the Common Fisheries Policy, and other policy drivers, into practical effect. There is, therefore a strong sense of overall purpose for fisheries research that of providing evidence for achieving sustainable fisheries management, set within the ecosystem based principle. MariFish will bring much needed dialogue and cooperation between national programme managers of fisheries research through the development of an effective partnership. To help MariFish achieve its many challenging goals the following statement of overall purpose has been adopted by the partners: 'MariFish will focus on that research which provides evidence to managers for the development of strategies for sustainable fisheries, including links with aquaculture, set within the ecosystem based principle.'

Partners

• CENTRAL SCIENCE LABORATORY (DEFRA)	United Kingdom
• FISHERIES RESEARCH SERVICE	United Kingdom
• ICELANDIC CENTRE FOR RESEARCH	Iceland
• MINISTRY OF AGRICULTURE, NATURE AND FOOD QUALITY	The Netherlands
• MINISTERSTWO NAUKI I INFORMATYZACJI (MINISTRY OF SCIENTIFIC RESEARCH AND INFORMATION TECHNOLOGY)	Poland
• MINISTERIO DE EDUCACION EY CIENCIA	Spain
• BUNDESMINISTERIUM FUR VERBRAUCHERSCHUTZ, ERNAEHRUNG UND LANDWIRTSCHAFT	Germany
• MINISTERIO DA AGRICULTURA, DO DESENVOLVIMENTO RURAL E DAS PESCAS	Portugal
• RESEARCH PROMOTION FOUNDATION	Cyprus
• THE SWEDISH RESEARCH COUNCIL FOR ENVIORNMENT, AGRICULTURAL SCIENCES AND SPATIAL PLANNING	Sweden
• INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	France
• MARINE INSTITUTE	Ireland
• MORSKI INSTYTUT RYBACKI	Poland
• NORGES FORSKNINGSRAD	Norway
• MINISTRY OF FOOD AGRICULTURE AND FISHERIES; DIRECTORATE FOR FOOD, FISHERIES AND AGRI BUSINESS	Denmark
• GENARAL SECRETARIAT FOR RESEARCH AND TECHNOLOGY, MINISTRY OF DEVELOPMENT	Greece
• MINISTERIE VAN DE VLAAMSE GEMEENSCHAP	Belgium

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European Commission

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